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Dispersants for Oil Spill Response: Issues, Policy, and Planning Considerations

Tina M. Burke
University of Rhode Island

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by
Tina M. Burke

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Professor Richard Burroughs

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List of Acronyms

AC	Area Committee
ACP	Area Contingency Plan
APA	Administrative Procedures Act
API	American Petroleum Institute
ASTM	American Society for Testing and Materials
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
COTP	Captain of the Port
DOC	Department of Commerce
DOD	Department of Defense
DOE	Department of Energy
DOI	Department of Interior
DOL	Department of Labor
DOS	Department of State
DOT	Department of Transportation
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FOSC	Federal On-Scene Coordinator
FWPCA	Federal Water Pollution Control Act
FWQA	Federal Water Quality Administration
GSA	General Services Administration
HHS	Health and Human Services
LOOP	Louisiana Offshore Oil Port
NCP	National Contingency Plan
NEPA	National Environmental Policy Act
NOAA	National Oceanic and Atmospheric Administration
NRC	National Research Council
OPA 90	Oil Pollution Act of 1990
OTA	Office of Technology Assessment
RCP	Regional Contingency Plan
RP	Responsible Party
RRT	Regional Response Team

List of Acronyms (cont.)

SUPSALV	Supervisor of Salvage
USACE	United States Army Corps of Engineers
USCG	United States Coast Guard
USDA	United States Department of Agriculture

Chapter 1 INTRODUCTION

Oil spill response in the marine environment has become increasingly important in the past few decades as the threat of major oil spills from both oil tankers and offshore oil exploitation activities has increased. Although man has been attempting to deal with human-induced oil spills in the marine environment for many years, oil spill response today remains an inexact science. Much research has been conducted in the past in order to develop technologies to provide the most effective means of oil spill response, and such research is currently ongoing. Today's available technologies differ in their method of operation. For example, mechanical methods are designed to physically remove oil from the water's surface; chemical treating agents may help disperse the oil throughout the water column or herd the oil for enhanced mechanical recovery; and burning may be used to remove many of the components of the oil from the water through combustion. Each method has its advantages and disadvantages. The best method to employ depends on the specific spill conditions, and oftentimes a combination of the available technologies provides the best response in terms of removing the oil from the water's surface and minimizing damage. For this reason, it is vitally important that the nation's oil spill response policy allow for the ability to make use of all available response technologies. Otherwise, the capability to effectively respond to marine

oil spills off the coasts of the United States is severely limited.

Chemical dispersants are one oil spill response method that has in the past been virtually precluded from effective use in the United States. The concerns surrounding dispersant use have centered mainly around their potential toxicity, a fear sparked by the *Torrey Canyon*[1] incident of 1967 during which the dispersants used caused more ecological harm than did the spilled oil. As a result, the policy established in the United States to govern dispersant use was extremely conservative. It required that numerous agencies grant approval before dispersants could be used on any oil spill. Such a cumbersome decision process basically prevented dipsersant use because these agencies could never come to an agreement, or, if they did, the decision always came too late to conduct effective dipsersant application.

In recent years, however, this prohibitive dispersant use policy has been recognized as a hindrance to effective oil spill response in certain situations, especially situations involving large amounts of oil spilled offshore. Advances in dispersant technology have created less toxic dispersants, and much research has been conducted to

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[1]The *Torrey Canyon* was a Liberian flagged tanker that ran aground off the coast of the British Isles in 1967. The vessel spilled over 100,000 tons of oil which caused extensive damage to the British and French coastlines. During the response, large amounts of first generation dispersants were used to combat the spill. They were highly toxic and caused severe ecological damage. Since this incident, both second and third generation dispersants, which are much less toxic, have been developed for use in oil spill response. See U. S. Environmental Protection Agency, Use of Chemical Dispersants for Marine Oil Spills. EPA/600/R-93/195 (November 1993), 28.

determine conditions under which dipsersant use would be most effective in terms of minimizing overall spill damage. In light of these advances, yet the continued inability of responders to use dispersants, it became apparent that the United States was perhaps missing opportunities to conduct the best response to oil spills due to the archaic dispersant policy. This problem was highlighted during the *Exxon Valdez*[2] disaster. As a result the Oil Pollution Act of 1990, enacted as a result of the spill, attempted to improve the dispersant use policy. This law required that new oil spill contingency plans include procedures for obtaining expedited dispersant use decisions. Subsequent implementing regulations called for the development of dispersant pre-authorization plans. Under specified conditions, these plans allow persons in charge of the response at the federal level to make single-handed dispersant use decisions at the time of a spill.

The development of these dispersant pre-authorization plans could potentially make great progress with regard to increasing the viability of dispersant use for oil spill response in the United States. However, the manner in which these plans are developed is crucial to their successful implementation, both over the short and long terms. While the law requires that the appropriate government agencies

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[2]The tanker *Exxon Valdez* ran aground in Prince William Sound, Alaska, in March of 1989, creating a spill of over eleven million gallons, the largest spill to date in U. S. waters. See National Response Team, The Exxon Valdez Oil Spill, A Report to the President, (May, 1989), 1.

approve the dispersant pre-authorization plans before they are considered valid, the role of other interested parties in the dispersant use planning process is not so clear. The involvement of other interests, such as environmental groups, local citizens, resource users such as fishermen, etc., is largely left to the discretion of each government official in charge of planning in specific regions around the country. This presents a potential problem for the likely success of the dispersant pre-authorization plans. Interest groups are a formidable political force and their voice cannot be ignored at spill time. Logically, if such interests have not been involved in the dispersant pre-authorization planning process, the potential exists that they will emerge at the time of the spill or afterwards to express their views and ultimately to undermine the ability of the plans to produce the expected expedited decisions.

Based on this premise, the future success of the new dispersant pre-authorization plans in attaining expedited and effective dispersant use decisions may be forecast based on the involvement of appropriate interested parties in the planning process. Because dispersant pre-authorization plans in the Northeast United States are currently in the final stages of development and approval, it would be useful at this time to examine the involvement of interest groups in this process to predict the likely success of these individual plans. To examine this issue, a study was conducted to identify appropriate interest groups in the five

planning Areas of the Northeast region, and to survey them regarding their interest in oil spill response issues and activities, their involvement in oil spill response planning (including dispersant use), and their satisfaction regarding this involvement. Based on the results of this study, the likelihood of the dispersant pre-authorization plans in the Northeast to be successfully implemented in the future can be assessed. Also, recommendations for steps to improve the likelihood of success, if needed, can be provided.

The purposes of this paper are thus four-fold. First, dispersant use as an oil spill response option and the issues surrounding dispersant use will be discussed. Second, the past dispersant use policy will be reviewed, as will the recent changes to the policy in terms of the attempt to make dispersants a viable response option in the United States. Third, the role of interest groups in oil spill response issues and the importance of including them in contingency planning efforts, specifically dispersant planning, will be discussed. Lastly, the results of the study to determine the involvement of interest groups in the dispersant planning processes in the Northeast will be given, along with an analysis regarding the implications of the findings, as well as pertinent recommendations to promote the future success of dispersant pre-authorization plans, both in the Northeast and elsewhere in the United States.

Chapter 2 OIL SPILL RESPONSE - GENERAL

2.1 THE IMPORTANCE OF OIL SPILL RESPONSE

"Oil spills are complex and there is almost no way for a response to be perceived as successful."[3] Stated another way, "no one comes out of a spill looking good. There are no winners when you go up against Mother Nature. . . the results depend on luck and God."[4] These are basic truths of which oil spill responders are well aware. Yet, being capable of implementing the most coordinated, effective, and efficient response possible can help to minimize the aesthetic, economic, and ecological damage of an oil spill. Therefore, the capability to respond quickly with the best technology is of the utmost importance in terms of oil spill response.

Proper planning for oil spill response and the ability to make use of the best available technologies is becoming increasingly important as the likelihood of large oil spills in the world's oceans grows. There are many sources of oil in the marine environment due to human activities at sea. Offshore exploration and exploitation of oil and gas present the threat of blowouts and considerable spills. In fact, several major spills due to such blow-outs have occurred historically.[5] Another

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[3]Gary L. Ott, June Lindstedt-Siva, and Ann Hayward Walker, "Evolving Spill Managment Systems Under OPA 90 Could Reduce Response Effectiveness," in 1993 International Oil Spill Conference Proceedings, by the American Petroleum Institute (Washington, D. C., 1993): 78.

[4]Robert Mottley, "Owners Seek Sweeter Deals from Responders," Marine Log 100 (Feb 1995): 20.

[5]J. Doerffer, Oil Spill Response in the Marine Environment (New York: Pergamon Press Ltd., 1992): 76.

source of potential release of oil into the marine environment is marine transportation, which has increased enormously in recent years. Presently over 1.5 billion tons of crude oil and petroleum products are transported each year by more than seven thousand tankers.[6] In addition, the size of tankers has increased dramatically. In the fifteen years between 1965 and 1980, the average size of world tankers grew from 28,000 deadweight tons to over 100,000 deadweight tons.[7] Today there are tankers over 200,000 deadweight tons in operation. This increase in the amount of oil carried in one vessel corresponds to the potential for more massive oil spills if one of these vessels were to have an accident. Larger oil spills are also evident in the statistics. From 1967 to 1990, the world experienced sixty-six spills that exceeded two million gallons, both from offshore oil and gas exploration and marine transportation activities.[8] In addition, the years 1978 to 1993 have shown a general increasing trend in the number of worldwide oil spills between one and ten million gallons.[9]

Once a significant oil spill does occur, the response becomes critical in attempting to minimize damage from the spill, whether it be trying to remove the oil from the water or somehow

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[6]Doerffer, 76.

[7]David M. Bovet and Charles R. Corbett, "Federal Tanker Oil Spill Legislation: Implications for Marine Transportation," in Oil Spills: Management and Legislative Implications, eds. Malcolm L. Spaulding and Mark Reed (New York: American Society of Civil Engineers, 1990): 51.

[8]U. S. Congress, Office of Technology Assessment, Coping With an Oiled Sea: An Analysis of Oil Spill Response Technologies (Washington D. C.: GPO, 1990): 4.

[9]Jeff Welch, "Oil Spill Intelligence Report International Oil Spill Database," in Proceedings of the 1995 International Oil Spill Conference, (Washington, D. C., American Petroleum Institute, 1995): 1008.

treating the oil so that certain impacts are lessened. Oil spill damage can take many forms. Biological effects include hazards to human health through eating contaminated seafood; decreases in fisheries resources and damage to wildlife such as seabirds and mammals; modification of marine ecosystems by elimination of certain species with an initial decrease in diversity and productivity; and modification of habitats which may delay or prevent recolonization.[10] Aesthetic and economic damage also results. Oil spills often contaminate coastal areas, creating unsightly messes on recreational and beach areas, soiling and staining harbor areas and vessels, contaminating commercial shellfish grounds, and posing problems with regard to intake sources for desalination and power plants.[11] Although damage resulting from oil spills is usually of limited and local duration, exceptionally large spills (such as the *Torrey Canyon* spill of 117,000 tons or the *Amoco Cadiz* spill of 230,000 tons) can persist for several years, especially if they take place in Arctic or subarctic regions.[12]

Thus, it is apparent that the potential for catastrophic spills is ever increasing due to society's dependence on oil and the subsequent technological advances in both offshore oil and gas exploration/exploitation and the maritime transportation of oil. In addition, the damages that can be wrought as a result of such a spill can be devastating. In

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[10]Doerffer, 79.

[11]National Research Council, Using Oil Dispersants on the Sea (Washington, D. C.: National Academy Press, 1989): 6.

[12]Doerffer, 79.

light of these circumstances, effective oil spill response is vital for the well-being of both the world's oceans and resources, as well as for the world population and future generations.

2.2 THE DIFFICULTY WITH OIL SPILL RESPONSE

While the above information stresses the importance of effective oil spill response, it must be recognized that removing oil from the marine environment once it has been released is extremely difficult, and effective methods to accomplish such a task have remained somewhat of a mystery, even in today's highly technological society.

The characteristics and behavior of oil spilled in water contribute largely to the difficulties encountered when attempting to clean it up. First, crude oil or petroleum products undergo a variety of processes once released into the marine environment. These include spreading and drift, evaporation, natural dispersion into the water column, microbial degradation, etc. Some of these processes actually aid cleanup. For example, evaporation can account for the removal of up to forty percent of some spills from the water's surface.[13] Many spills involving lighter petroleum products evaporate so readily that the need for spill cleanup is precluded. Other processes, however, severely inhibit effective response. The most noteworthy is the spreading process. As a result of spreading, the

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[13]U. S. EPA, Use of Chemical Dispersants, 12.

thickness of freshly spilled oil can rapidly approach an average of 0.1 millimeter or less within a matter of a few hours.[14] Although spreading depends on several factors such as the type of oil, the amount of oil, and wind and sea conditions, a spill similar to that experienced with the *Exxon Valdez* can spread over six square miles (almost four thousand acres) during the first twelve hours.[15] Obviously rapid spreading vastly complicates cleanup efforts both because the oil begins to impact a very large area very quickly, and because the oil spreads into an extremely thin layer which is difficult to remove from the water's surface.

Numerous response methods have been developed and are continually being improved upon to tackle these difficulties. The various response options include mechanical containment and recovery, use of chemical dispersants to transfer the oil from the surface of the water into the upper water column, burning the oil in place, accelerating biological treatment of the oil in place, using sinking agents to move the oil the ocean floor, and allowing natural processes alone to combat the oil.[16] The following sections describe and compare mechanical oil spill cleanup methods, the traditionally favored U.S. response technology, with dispersants in terms of their utility as oil spill response options. As will be seen, dispersants offer significant advantages over mechanical cleanup in certain respects, and their use

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[14]Ibid., 11.

[15]U. S. Congress, OTA, 11.

[16]U. S. EPA, Use of Chemical Dispersants, 5.

provides the highest potential for minimizing damages under certain spill conditions.

2.3 MECHANICAL CLEANUP METHODS

Mechanical containment and recovery has been the preferred response method in the United States.[17] The goal of mechanical response is to contain the floating spill and to physically remove as much of the oil as possible from the marine environment.

The basic components of mechanical recovery systems consist of booms and skimmers. Booms are barrier devices placed in the water to contain the oil spill (to reduce spreading and facilitate recovery), to divert the oil to areas where recovery is possible, or to prevent the oil from reaching environmentally sensitive areas.[18] They are composed of a means of flotation, a skirt, a freeboard, a tension member, and weighted ballast.[19] Other types of barriers exist, such as those that rely on forced air to contain the slick, but they are used much less frequently than traditional booms.[20] Skimmers are the devices that remove the oil from the water's surface, of which there are many types such as the weir type, suction devices, sorbent surface devices, etc.[21] Together, boom and skimmer combinations attempt to

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[17]Ibid., 4.
[18]Doerffer, 133.
[19]Ibid.
[20]Ibid.
[21]Ibid., 179.

collect the slick into a compact area where the slick thickens and is removed from the water's surface.

Such mechanical recovery devices are subject to severe limitations. The performance of these devices can be inhibited by oceanic conditions and weather, including currents, waves, and wind, as well as by the nature of the oil slick itself.[22] Containment using booms becomes highly ineffective unless the currents moving against the boom are less than one knot.[23] In cases where the current exceeds that speed, the oil tends to dip beneath the boom and escape, a process called entrainment. In addition, booms are limited as far as their utility in the open seas. For the boom to be effective, the maximum wave height should be less than the freeboard of the boom or else the waves, and the oil, will splash over the top of it. Thus most boom barriers lose their effectiveness in wave heights greater than four feet.[24] In addition, booms lose their effectiveness quickly as wind speeds approach twenty miles per hour.[25] Skimmers are limited by the same conditions; they work best in calm water with little or no wave action and if the current velocity exceeds 0.7 knots, the oil is likely to be swept underneath the skimmer.[26] Other limiting factors are that the recovery rate of skimmers decreases as the oil slick thickness decreases, being negligible in thicknesses of less than 1.0 mm, and recovery rate is also

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[22]National Research Council, 14.
[23]Ibid.
[24]Ibid., 16.
[25]U. S. EPA, Use of Chemical Dispersants, 4.
[26]Doerffer, 159.

impacted by the presence of debris in the water which can clog the skimmer.[27] Lastly, the use of booms and skimmers is limited by the logistical problems of first moving the equipment to the site and then maneuvering and anchoring the devices, as well as coordinating the activities of the various vessels needed to accomplish these tasks.[28]

The removal of oil spills from the marine environment with mechanical methods has thus been likened to "emptying a very large swimming pool with one, two, or a hundred eye droppers."[29] In fact, mechanical recovery operations rarely collect more than ten to fifteen percent of oil in open sea conditions.[30] Moreover, the future for advances in mechanical recovery technology do not look promising. There have been advances with regard to the development of integrated systems whereby high capacity mechanical recovery systems are designed as either temporary or permanent accommodations aboard vessels. These advances have improved the mobility and utility of traditional mechanical recovery systems. Examples include the new vessel of opportunity skimming systems, which can be placed onboard any "vessel of opportunity" for spill response, and single-purpose, specially designed oil spill response vessels, which are designed and maintained specifically for spill response.[31]

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[27]National Research Council, 16.
[28]Ibid.
[29]Ott, Lindstedt-Siva, and Walker, 75.
[30]U. S. EPA, Use of Chemical Dispersants, 2.
[31]U.S. Congress, OTA, 17.

However, these new designs continue to use conventional boom and skimmer principles and are therefore subject to the same limitations and inefficiencies of those devices as described above.[32] Basically, mechanical recovery techniques have remained on a technological plateau for the past decade and the technologies they employ are still considered primitive by many.[33] Because the behavior of oil in the environment which limits mechanical recovery of oil in water is well understood, the prediction is that no major breakthroughs are likely to occur.[34]

2.4 DISPERSANTS

With not much light at the end of the tunnel with regard to mechanical recovery techniques, other oil spill response techniques must be considered. Dispersants, while not highly regarded in the United States as a response method, do offer a reasonable option to other response methods in certain circumstances. Dispersants are "those chemicals that emulsify, disperse, or solubilize oil into the water column or promote the surface spreading of oil slicks that facilitates dispersal of the oil into the water column."[35] In more simplified terms, they break up the oil into small droplets and, through mixing energy

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[32]Ibid.

[33]U. S. Congress, House, Committee on Interior and Insular Affairs, Investigation of the *Exxon Valdez* Oil Spill, Prince William Sound, Alaska, 101st Cong., 1st Sess., 18 July 1989: 67.

[34]U. S. Congress, House, Committee on Merchant Marine and Fisheries, Oil Spill Response Technology, 102nd Cong., 1st Sess., 18 June 1991: 7.

[35]U. S. EPA, Use of Chemical Dispersants, 13.

provided by the sea, cause these droplets to quickly disperse into the upper ten meters of the water column.[36]

There have been many issues surrounding the use of dispersants as a "cleanup" method. Dispersants do not actually remove spilled oil from the water and were thought to potentially increase adverse effects of oil spills because they themselves can be toxic. In addition, questions have arisen concerning the effectiveness of dispersants in terms of their ability to actually disperse oil, thereby removing it from the water's surface. Innumerable studies have been conducted in the recent past to satisfy these toxicity and effectiveness concerns, and both the National Research Council and the Environmental Protection Agency have compiled available research information into useful findings regarding the utility of dispersants in oil spill response. These findings are summarized below.

The toxicity of dispersants alone, as well as that of dispersed oils compared to undispersed oils, is important in determining whether dispersant use will cause more harm than good during a response. As far as biological effects, the lethal toxicity of most dispersants currently considered for use in the United States and Canada is low compared to the toxicity of the various components of crude oil and refined oil products.[37] Although sublethal responses to dispersants have been observed,

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[36]Ibid., 14.

[37]National Research Council, 257. First generation dispersants were highly toxic; their formulations were derived from engine room degreasers. Today's dispersant formulations, however, are much less toxic. They use nonaromatic hydrocarbons or water-miscible compounds such as ethylene glycol or glycol ethers, as the solvent, and also use less toxic surfactants. See National Research Council, chapter 2, on the physics and chemistry of dispersants.

the National Research Council states that it is unlikely that dispersants would contribute significantly to lethal or sublethal toxicities.[38] Dispersants themselves, however, can cause adverse effects on birds and mammals as they reduce the water repellency of fur and feathers and may reduce the hatchability of eggs.[39]

With regard to the toxicity of dispersed oils, it has been found that the acute toxicity of dispersed oils is generally similar to that of oil in the water column alone.[40] However, dispersing an oil slick may impose temporary stresses to organisms in the upper portion of the water column in the area of application due to higher short term exposure to the toxic components of the oil.[41]

Ecologically, chemically dispersed oils do not adhere as readily to some organisms or habitats as untreated oil. Dispersants also tend to increase the rate of biodegradation of oil in some cases.[42] Because of these facts, dispersants are likely to reduce the chronic impact of oil on many habitats.[43] However, the acute effects of chemically dispersed oils on organisms and habitats vary depending on several factors such as type of habitat, types of organisms present, frequency of water exchange, etc.[44] Thus any decision to use dispersants when

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[38]Ibid, 257. Information regarding determinations of dispersant toxicity and the results of toxicity tests on a variety of organisms appears in National Research Council, chapter 3.

[39]Ibid., 262.

[40]Ibid., 259.

[41]U. S. EPA, Use of Chemical Dispersants, 26.

[42]National Research Council, 259, 260.

[43]U. S. EPA, Use of Chemical Dispersants, 14.

[44]National Research Council, 261.

dispersed oil may impact various species and habitats must be considered on a case-by-case basis.[45] The American Petroleum Institute (API) has developed ecologically based guidelines which describe the desirability of using dispersant in various habitats. (See Figure 1.) The guidelines suggest, for example, that dispersant use is the preferred response method in open water offshore/nearshore areas, is viable in enclosed bays and harbors, and should be avoided on sheltered sandy beaches. Such a matrix, along with information regarding potential impacts on various species present, can help decision-makers decide on the best response options for various habitat conditions.

To summarize, the principle biological/ecological benefits of chemically dispersing an oil slick are to:

-prevent stranding of oil in the intertidal zone, especially when environmentally sensitive habitats are involved;

-reduce the hazards of discharged oil to marine birds and mammals by preventing the oil from reaching them;

-enhance the degradation of oil components;

-and reduce the chronic impact on some habitats because of shorter persistence of oil.[46]

The potential biological/ecological disadvantages of dispersant use include:

-the possible expansion of the surface area of slicks which can increase the likelihood that marine mammals and

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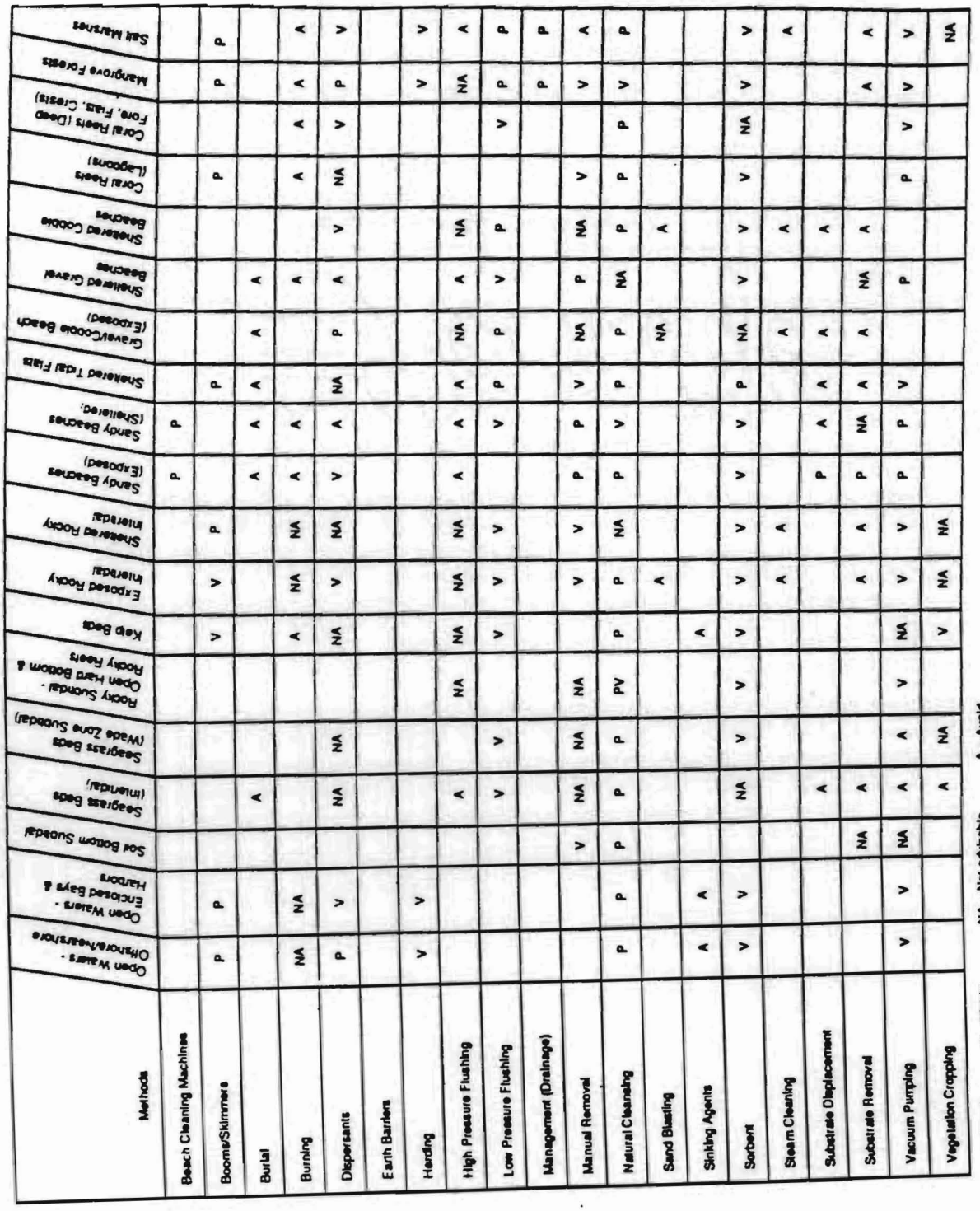
[45]Ibid.

[46]Ibid., 255.

Figure 1 CLEANUP METHODS RECOMMENDED BY THE AMERICAN PETROLEUM INSTITUTE FOR VARIOUS HABITATS



Methods	Open Waters - Offshore/Nearshore	Open Waters - Enclosed Bays & Harbors	Soft Bottom Subtidal	Seagrass Beds (Intertidal)	Seagrass Beds (Wade Zone Subtidal)	Rocky Subtidal - Open Hard Bottom & Rocky Reefs	Kelp Beds	Exposed Rocky Intertidal	Sheltered Rocky Intertidal	Sandy Beaches (Exposed)	Sandy Beaches (Sheltered)	Sheltered Tidal Flats	Gravel/Cobble Beach (Exposed)	Sheltered Gravel Beaches	Sheltered Cobble Beaches	Coral Reefs (Lagoons)	Coral Reefs (Deep Fore, Flats, Crests)	Mangrove Forests	Salt Marshes
Beach Cleaning Machines										P									
Booms/Skimmers	P	P					V	V	P			P				P		P	P
Burial				A						A	A	A	A	A					
Burning	NA	NA					A	NA	NA	A	A			A		A			A
Dispersants	P	V		NA	NA		NA	V	NA	V	A	NA	P	A	V	NA	V	P	V
Earth Barriers																			
Herding	V	V																V	V
High Pressure Flushing				A		NA	NA	NA	NA	A	A	A	NA	A	NA			NA	A
Low Pressure Flushing				V	V	V	V	V	V		V	P	P	V	P		V	P	P
Management (Drainage)																		P	P
Manual Removal			V	NA	NA	NA		V	V	P	P	V	NA	P	NA	V		V	A
Natural Cleanaig	P	P	P	P	P	PV	P	P	NA	P	V	P	P	NA	P	P	P	V	P
Sand Blasting								A					NA		A				
Sinking Agents	A	A					A												
Sorbent	V	V		NA	V	V	V	V	V	V	V	P	NA	V	V	V	NA	V	V
Steam Cleaning					V			A	A				A		A				A
Substrate Displacement				A						P	A	A	A	A	A				
Substrate Removal			NA	A				A	A	P	NA	A	A	NA	A			A	A
Vacuum Pumping	V	V	NA	A	A	V	NA	V	V	P	P	V		P		P	V	V	V
Vegetation Cropping				A	NA		V	NA	NA										NA

P = Preferred V = Viable NA = Not advisable A = Avoid

Source: American Petroleum Institute, Oil Spill Cleanup: Options for Minimizing Adverse Ecological Impacts, Report No. 4435 (Washington, D. C., 1985), in U. S. EPA, Use of Chemical Dispersants, 91.

seabirds will be impacted;

-the potentially increased effect of dispersed oil on marine life in the water column near the sea surface;

-and the effect of oil dispersed offshore that may reach coastal marine habitats and communities.[47]

With regard to the various ecological and biological impacts, then, the decision to use dispersants obviously involves trade-offs, and the advantages of dispersant use must be carefully weighed against potential disadvantages.

Along with toxicity concerns, the effectiveness of dispersants on oil spills has also been a source of controversy. The ability of dispersants to effectively break up an oil slick depends on numerous factors. These include the physical properties of the spilled oil, the amount of weathering that the slick has undergone, the chemical composition of the oil, and the dispersant formulation and dosage rate.[48] Weathering of the slick is an extremely significant factor. The longer the oil remains in the water and the more viscous it becomes due to weathering, the less impact dispersants will have as far as breaking up the slick.[49] Thus decisions to use dispersants must be made quickly in order for the dispersants to work as expected.

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[47]Ibid.

[48]Ibid., 256.

[49]U. S. EPA, Use of Chemical Dispersants, 7.

High effectiveness is possible and has been documented in laboratory experiments.[50] In field experiments, however, effectiveness has been relatively low, a fact attributed to conditions not being proper for effective dispersion, or to the monitoring method being inaccurate.[51] Presently, the Minerals Management Service is conducting research to provide effectiveness data for a variety of test oils, as well as working to reformulate dispersant chemicals to enhance their effectiveness on a wider variety of spills.[52] The effectiveness of dispersants is becoming less questionable and today the general consensus is that dispersants can remove as much as thirty percent of a large spill from the surface under good conditions.[53] Therefore the National Research Council has recommended that the use of dispersants should be considered as a first response method for oil spills along with mechanical recovery.[54]

Dispersants definitely have a place in oil spill response. Probably the biggest advantage from a damage mitigation

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[50]National Research Council, 254.

[51]Ibid, 254. Dispersant effectiveness during field tests has been measured by visual observation, sampling of water-column concentration of dispersed oil, or mass balance calculations. While mass balance measurements provide the best evidence of dispersal of oil at sea, they are extremely difficult to accomplish in the field as they require a very large set of water samples to be taken, covering the entire water mass within which the oil might become dispersed, as well as an accurate measurement of the amount of oil lost through evaporation. Ibid., Chapter 4.

[52]U. S. Congress, Oil Spill Response Technology, 112.

[53]U. S. EPA, Use of Chemical Dispersants, 2, based on worldwide observations of oil spill response using dispersants. Note that field tests of dispersant effectiveness have reported effectiveness percentages between 0.5 and 78%. See Table 4-3 in National Research Council, 180, and chapter 4.

[54]National Research Council, 255.

perspective is that proper dispersant use can prevent spilled oil from reaching sensitive shorelines. As was written by the EPA, "the least controversial use of dispersants is on an oil slick in deep water that is heading toward an ecologically sensitive coastal area."[55] Allowing an oil spill to reach the shoreline and then attempting to remove it can cause significant environmental and economic impacts.[56] Moreover, once the oil has stranded on the shoreline, there may be little that can be done without further damaging the environment.[57]

In addition to the potential for damage minimization due to preventing oil from reaching critical areas or shorelines, dispersants can offer significant advantages over traditional mechanical recovery methods in terms of efficiency, cost, and waste minimization. With regard to efficiency, dispersants perform favorably with regard to both effectiveness and encounter rate, the two factors used to assess efficiency in oil spill response.[58] As already mentioned, the effectiveness of dispersants in removing oil from the water's surface can be on the order of thirty percent while mechanical methods average only ten to fifteen percent.[59] Because dispersants can be applied by aircraft over large areas in relatively short amounts of time,

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[55]U. S. EPA, Use of Chemical Dispersants, 29.

[56]Ibid., 9.

[57]Ott, Lindstedt-Siva, and Walker, 76.

[58]Ott, Lindstedt-Siva, and Walker, 75. Effectiveness refers to the ability to remove oil from the surface of the water, and encounter rate refers to the ability to affect large amounts of oil in a short amount of time. According to the authors, oil spill response options that have high effectiveness and high encounter rate should be chosen to best combat oil spills.

[59]U. S. EPA, Use of Chemical Dispersants, 2.

they have an extremely high encounter rate compared with that of mechanical methods. In fact, dispersants are one of the few spill countermeasures that can be applied to a large area in a timely manner. Because of these characteristics, dispersants, more than any other method, have the potential to influence the outcome of a significant spill event.[60]

The use of dispersants can also result in savings in cleanup costs. The National Research Council noted that while "costs of oil spill cleanup are high, they are an order of magnitude more for mechanical cleanup than for dispersants, and another order of magnitude more for the cleanup of immediate and obvious damage done once the oil has come ashore."[61] A study conducted to compare the cost of oil spill cleanup using these two methods provides further evidence. The results of the study found that the cost of removing oil mechanically from a shoreline ranged from $65 to $5000 per barrel of oil. By contrast, the cost of intercepting the oil at sea by spreading dispersants from a four-engine fixed wing aircraft ranged from $15 per barrel to a maximum of $65 per barrel.[62] The case for dispersant use is further supported by the fact that shoreline cleanup costs in the United States are expected to increase. This is due to the fact

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[60]June Lindstedt-Siva, "Approaches to Planning for Dispersant Use in Oil Spill Response," in Oil Dispersants: New Ecological Approaches, ed. L. Michael Flaherty (Philadelphia: ASTM, 1989), 112.

[61]National Research Council, 8.

[62]Albert H. Lasday, "Economic Evaluation of Dispersants to Combat Oil Spills," in Oil Dispersants: New Ecological Approaches, ed. L. Michael Flaherty (Philadelphia: ASTM, 1989), 41.

that oiled debris is currently classified as hazardous waste which is expensive to haul and dispose of.[63]

The fact that dispersants do not create waste materials is yet another advantage. If the goal of oil spill response is to minimize overall ecological damage, the fact that dispersants do not create tremendous amounts of waste material which will eventually have impacts elsewhere must be considered. In fact, Ferriere argues that waste minimization concepts should be addressed as a means of providing for the most ecologically sound oil spill response.[64] While mechanical response creates problems in terms of waste, dispersants do not and are therefore highly compatible with waste minimization principles.[65]

Obviously dispersants are no panacea for oil spills and their use requires careful consideration. Decision-makers must determine whether the dispersants will be effective on the slick in question, and must make important trade-off decisions regarding the impacts of both the oil and the dispersants on the resources expected to be affected. The point to be made is that dispersants in some situations can contribute significantly to minimizing damage from oil spills and therefore should be available as a viable option when conditions warrant their use.

To be an effective and viable tool, however, certain prerequisites are necessary. Much has been written about what is needed to make dispersant use feasible given their controversial

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[63]Ibid, 42.

[64]Dale Ferriere, "Waste Minimization Concepts Applied to Oil Spill Response," in 1993 International Oil Spill Conference Proceedings, (Washington, D. C.: American Petroleum Institute, 1993), 111.

[65]Ibid, 113.

nature and the technical requirements necessary to apply them.[66] The first prerequisite is a functional decision-making process so that the decision to use dispersants on a spill can be made quickly. This is a must as dispersants lose their effectiveness over time as oil becomes weathered (see above). Contingency plans are also necessary. The purpose of such planning is to settle conflicts and to make decisions regarding dispersant use prior to a spill, a process which facilitates decision-making at the time of the spill. Lastly, an appropriate logistics capability to apply the dispersants must be present. Again, due to the time critical nature of dispersant application, the chemicals, the application platform (i.e. boat or aircraft), and technical information regarding application rates and such must be compiled/positioned and ready to go when "the bell rings." This logistical capability, however, will only be developed once the other prerequisites are in place. No company can be expected to make such an investment unless it can be sure that dispersant use is indeed a viable response option.

Given these facts, it is no wonder dispersants are never used in the United States. Up to this point, planning for dispersant use has been slow and haphazard, and the dispersant use policy has involved a cumbersome decision process unable to produce quick decisions. These problems, and the consequent

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[66]Robert Pavia and CDR Lindon A. Onstad, "Plans for Integrating Dispersant Use in California," in Proceedings of the 1985 Oil Spill Conference, (Washington, D. C.: American Petroleum Institute, 1985) 85, and Mark L. Lavache, "Dispersant Use Considerations," in Oil Dispersants: New Ecological Approaches, ed. L. Michael Flaherty (Philadelphia: ASTM, 1989), 142. Both articles which describe well what is needed in terms of prerequisites for effective dispersant use.

reluctance to prepare logistically for dispersant use, have basically precluded dispersant use as a response option. The next section discusses the past policies surrounding dispersant use, as well current changes in the policy which attempt to address these problems.

Chapter 3 Dispersant Use Policy

3.1 THE HISTORY OF U. S. DISPERSANT USE POLICY

As one Coast Guard Admiral stated during a post-*Exxon Valdez* congressional hearing, "the use of dispersants is always controversial and poses problems when they are considered." Also, "the U. S. as a body of organizations and agencies has been very reluctant to get off into dispersants."[67] This reluctance was in part a direct result of the British response to the *Torrey Canyon* incident, during which the dispersants used to combat the immense oil spill caused more damage than good. The dispersants used during that incident were highly toxic; they were developed as degreasing agents to clean tankers and were not suited for oil spill response. The results were an ecological disaster and natural recovery remained incomplete over ten years later.[68]

Therefore, as a result of the *Torrey Canyon* response, dispersants acquired a poor reputation and were feared for their potentially toxic effects. U. S. policy developed to govern dispersant use as an oil spill response option was subsequently exceptionally conservative. The Water and Environmental Quality Improvement Act of 1970[69] called for the development of a National Contingency Plan (NCP) that was to "provide for efficient, coordinated, and effective action to minimize damage from oil discharges," which could include "containment,

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[67]U. S. Congress, Investigation, 4, 85.

[68]U. S. EPA, Use of Chemical Dispersants, 28.

[69]The Water and Environmental Quality Improvement Act of 1970 amended the Federal Water Pollution Control Act (FWPCA). See U. S. Statutes at Large, vol. 84, pt. 1, (1970-1971): 91.

dispersal, and removal of oil."[70] Specifically, the plan was to describe procedures and techniques for dispersing oil, and was to include a schedule that (1) identified dispersants that could be used, and (2) identified waters in which dispersants could be used and the quantities of dispersant that would be considered safe.[71] The intent of this National Contingency Plan was not only to enhance the ability of the United States to respond effectively to large oil spills, but to protect against the irresponsible use of dispersants. In considering the adoption of this law, the Congress clearly stated that one of the objectives of the NCP was to "insure that the waters, beaches, and shorelines, including the marine environment, would not be damaged through the use of harmful chemicals or other materials."[72] The National Contingency Plan that resulted, promulgated by the Council on Environmental Quality in 1970, reflected these very sentiments.[73]

First, the plan advocated the development and utilization of mechanical and other oil spill control methods that would remove oil from the environment, and allowed that dispersants be used

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[70]FWPCA, as amended in 1970, Sec. 11(c)(2).

[71]FWPCA, as amended in 1970, Sec. 11(c)(2)(f) and (g).

[72]Water and Environmental Quality Improvement Act of 11970, Legislative History, U. S. Code Congressional and Administrative News, vol. 2 (1970): 2703.

[73] This was not the first National Contingency Plan. The first was the 1968 National Multi-Agency Oil and Hazardous Materials Contingency Plan. This plan, however, only discussed dispersant use in general terms, establishing overarching principles to govern the use of chemical dispersants. The 1970 NCP was the first plan to delineate specific requirements for dispersant use. See Harold J. Snyder, "Federal Regulatory Control of Oil Spill Removal Methods," in Proceedings of the 1975 Conference on the Prevention and Control of Oil Pollution, (Washington, D. C.: American Petroleum Institute, 1975), 33.

only if other control methods were judged inadequate or infeasible.[74] It also delineated specific conditions under which dispersants could be used, as well as specific authorities who were required to be involved in the decision to use dispersants. Basically, dispersants were authorized for use only if: (1) the Federal On-Scene Commander (FOSC)[75] judged it necessary to reduce hazards to human life or substantial hazard of fire to property; (2) the Federal Water Quality Administration (FWQA), in consultation with the concerned states, judged that dispersant use would prevent or reduce substantial hazard to a major segment of the population(s) of vulnerable species of waterfowl; or (3) the FWQA, in consultation with the concerned states, judged that dispersant use would result in the least overall environmental damage, or interference with designated uses.[76] The FOSC was also required to obtain the concurrence of the Department of Interior (DOI) representative to the Regional Response Team (RRT)[77] before using dispersants. Specific conditions during which dispersants could not be used were also specified. Those restrictions were based on the type of oil spilled, the amount of

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[74]Council of Environmental Quality, "National Oil and Hazardous Substances Pollution Contingency Plan, " Federal Register (2 June 1970) vol. 35, no. 106, p. 8513, Annex X, Sec. 2001.3 and 2007 {hereinafter cited as 1970 NCP}.

[75]According to the 1970 NCP, the Federal On-Scene Commander (FOSC) was the single executive agent predesignated by the NCP and regional plans to coordinate and direct pollution control activities at the scene of a spill or potential spill. The name of this position has since been changed to Federal On-Scene Coordinator, but the role remains essentially the same.

[76]1970 NCP, Annex X, Sec. 2005.

[77]Regional Response Teams (RRTs) are responsible for regional planning and the coordination of preparedness and response actions. Presently RRTs consist of members from USCG, EPA, FEMA, DOD, USACE, US Navy SUPSALV, DOE, USDA, DOC through NOAA, HHS, DOI, DOL, DOT, DOS, NRC, GSA, as well as state and local agencies.

oil, the depth of the water, whether the dispersed oil was likely to impact the shore, and the presence of marine life in the area.[78] Lastly, stringent requirements were established regarding dispersant data that was to be provided to FWQA for the agency's review prior to use of the dispersant.[79] Thus a system was designed in which dispersants were basically to be used as a last resort, and only after various individuals and agencies had both reviewed pertinent data on the specific dispersant to be used, and had collectively agreed that the stipulated conditions in the Plan were present in order to justify its use.

After the 1972 amendments to the Federal Water Pollution Control Act, the National Contingency Plan underwent some changes. First, the Environmental Protection Agency (EPA) was given responsibility for preparation of the Dispersant Schedule (i.e. the dispersant guidelines) under Executive Order 11735.[80] Second, the EPA representative to the RRT was required to grant concurrence to the FOSC before dispersants could be used (vice the DOI representative). The advice of this representative was to be binding on the FOSC.[81] Third, an "and" was placed between the stipulated dispersant use conditions listed in the 1970 NCP, thereby requiring that all three conditions be met instead of just one, as had previously been the case. Therefore, although some of the players had changed, the Plan continued to reflect

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[78]1970 NCP, Sec. 2006.

[79]Ibid., Sec. 2007.

[80]Council on Environmental Quality, "National Oil and Hazardous Substances Pollution Contingency Plan," Federal Register (13 August 1973) vol. 38, no. 155, p. 21888, preamble {hereinafter cited as 1973 NCP}.

[81]1973 NCP, Sec. 1510.36(a)(3).

fear of dispersants and to place significant hurdles in the path of dispersant use through the 1970's and the 1980's.

The responsibility for changes to the National Contingency Plan was delegated to the EPA in Executive Order 12777,[82] and the Plan has since undergone numerous changes. It will suffice for the purposes of this paper to review the status of the National Contingency Plan just prior to passage of the Oil Pollution Act of 1990 (OPA 90) so that the impact of that law may be demonstrated.

A revised National Contingency Plan was published in the federal register as a final rule on March 8, 1990 (just months prior to the passage of OPA 90). This plan required that the FOSC receive concurrence from the EPA representative and the affected state(s) representative(s) to the RRT, and consult with the Department of Commerce (DOC) and Department of Interior (DOI) natural resource trustees[83] when practicable, before authorizing dispersant use.[84] (This team of decision-makers is informally referred to as the "concurrence network.") In addition to these specific authorizations, particular dispersants were required to be listed on the NCP Product Schedule in order to be considered for use.[85] The FOSC, however, was authorized to use dispersants

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[82]U.S. Environmental Protection Agency, "National Oil and Hazardous Substances Pollution Contingency Plan," Federal Register (8 March 1990) vol. 55, no. 46, p. 8826, Statutory Authority {hereinafter cited as 1990 NCP}.

[83]Natural Resource Trustees are officials of federal natural resource management agencies designated in subpart G of the current NCP, or designated state officials or indian tribes, who may pursue claims for natural resource damages due to oil or hazardous substance releases.

[84]1990 NCP, Sec. 300.910(a).

[85]The NCP Product Schedule is a list of dispersants and other chemical or bioremediation products maintained by the EPA. These products may be authorized for use on oil discharges as per guidance in the NCP. To have a

not on the Product Schedule, and without the appropriate concurrences, if the use of the product was necessary to prevent or substantially reduce a hazard to human life.[86]

Another significant provision in the 1990 NCP stated that RRTs "shall, as appropriate, consider as part of their planning activities, the appropriateness of using the dispersants. . . listed on the NCP Product Schedule. . . . Regional Contingency Plans (RCPs) shall, as appropriate, address the use of such products in specific contexts."[87] If such plans were approved in advance by the concurrence network (i.e. EPA and state RRT representatives and DOC/DOI natural resource trustees), the FOSC could authorize dispersant use at the time of a spill without the approval of the concurrence network as long as the specific conditions as laid out in the RCP were followed.[88]

Thus through time the National Contingency Plan continued to maintain a conservative posture toward dispersant use, requiring that several agencies agree to use them in any specific circumstance. In comparison with the earliest editions of the NCP, the latest revisions prior to OPA 90 actually added an additional layer of hierarchy onto the already burdensome decision process by including DOC and DOI natural resource trustee consultations to the concurrence network.

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product placed on the Schedule, certain tests must be undertaken and the results, as well as other data on the product, must be submitted to EPA. For dispersants, only those which attain a 45 percent effectiveness value from the Swirling Flask effectiveness test will be placed on the product schedule. See the current NCP, Section 300.915, for all product information and testing requirements.

[86]1990 NCP, Sec. 300.910(c).

[87]1990 NCP, Sec. 300.910(e).

[88]Ibid.

Some progress was made, however, with regard to the provisions requiring RRTs to consider pre-planning. Plans which pre-approved dispersant use under specific conditions could tremendously reduce the time necessary to make a dispersant use decision. This would help to make dispersants a viable response option in light of the fact that they are effective only if applied rapidly after a spill has taken place (explained above.) Still, the language in the planning provision was such that RRTs could decide to what extent, if any, they wanted to pre-plan for dispersant use. Also, even if pre-planning were desired, reaching agreement among the agencies and states with varying interests proved to be a difficult task.

Despite the best efforts of RRTs across the country to streamline the dispersant use decision process, often the result at spill time had been no decision at all or a decision that came too late to affect the outcome of the spill.[89] Events during the *Exxon Valdez* spill underscored these problems and spurred some needed change in the form of the Oil Pollution Act of 1990.

3.2 DISPERSANTS AND THE *EXXON VALDEZ*

Shortly after midnight on March 24, 1989, the 987 foot tank vessel *Exxon Valdez* ran aground on Bligh Reef in Prince William Sound, Alaska, and what followed was the largest oil spill in U. S. history.[90] This tragic accident not only demonstrated the inadequacy of the U. S. National Response System as a whole to

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[89]Ott, Lindstedt-Siva, and Walker, 75.

[90]National Response Team, 1.

respond to such an incident, but more specifically pointed out lessons with regard to the dispersant use policies then in place.

At the time of the *Exxon Valdez* incident, the Regional Contingency Plan (RCP) for the area of Alaska was actually quite progressive in terms of its dispersant use policy. In one of the first planning efforts of its kind, this RCP included chemical dispersant pre-authorization procedures for use in Prince William Sound. These provisions were intended to allow the FOSC to make timely dispersant use decisions by providing him with the authorization to allow dispersant use in certain areas, under certain conditions, without going through the normal concurrence network.[91] The Plan divided Prince William Sound into three zones. (See Figure 2.) In zone 1 dispersant use was acceptable and the FOSC was pre-authorized to use them without RRT/state concurrence and resource trustee consultation. In zone 2, dispersant use was conditional and normal concurrence/consultation was required. Waters within zone 3 were not recommended for dispersant use, however, dispersants could be authorized through the normal concurrence network.[92]

The following chronology was extracted from the Federal On-Scene Coordinator's Report, T/V *Exxon Valdez* oil spill, and serves to demonstrate the dispersant use decision processes that occurred during that incident. When the *Exxon Valdez* initially ran aground and began to leak oil, the oil was present in zone 2, an area of conditional dispersant approval. The FOSC, realizing

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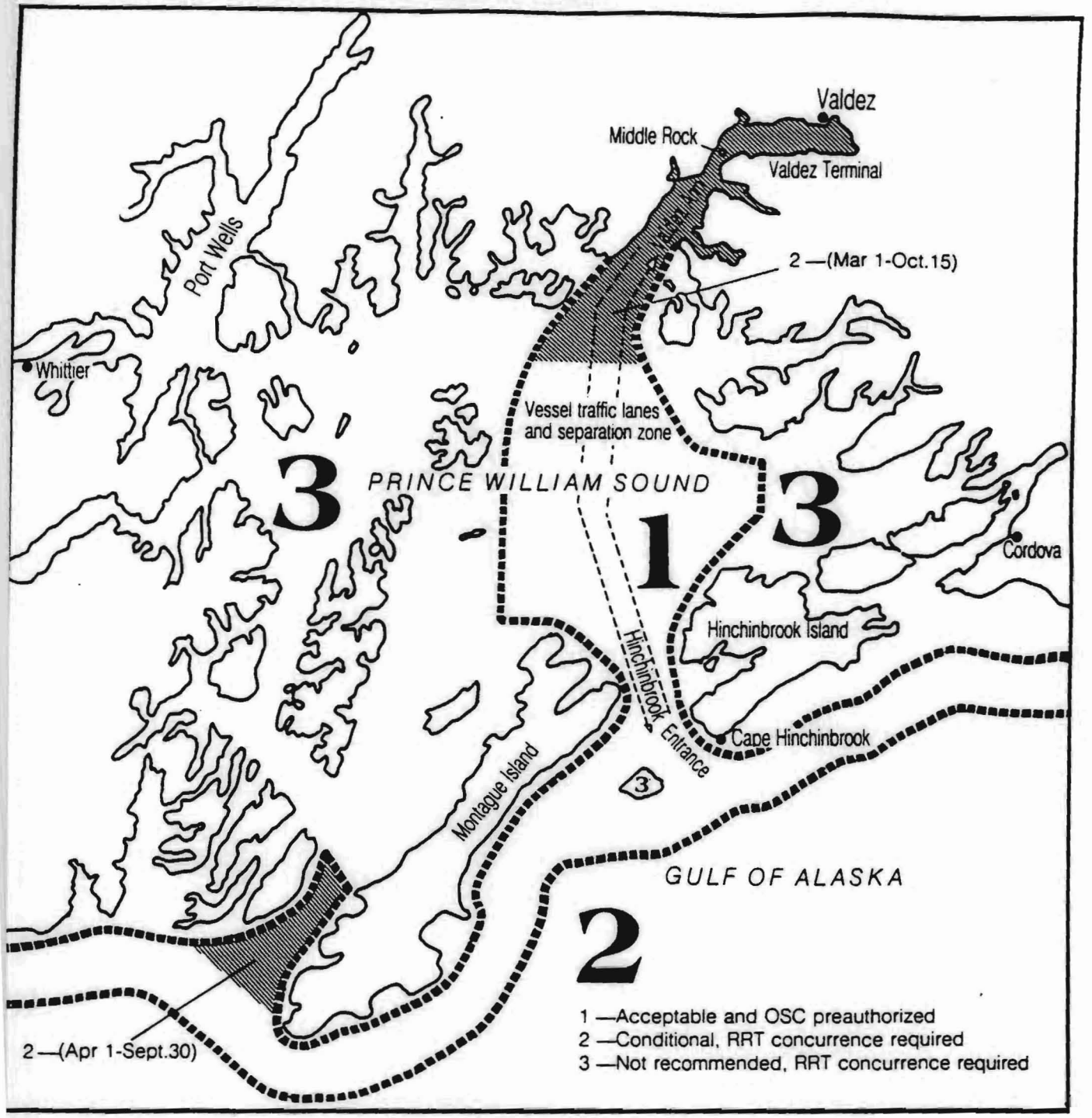
[91]Ibid., 6.

[92]Ibid., 17..

Figure 2

Zones Of Dispersant Use In Prince William Sound



Source: National Response Team, The *Exxon Valdez* Oil Spill, A Report to the President, May 1989, p. 18.

that dispersants might have been an option and that normal concurrence would have been required, prompted Alyeska, the terminal from which the vessel departed, to formally request approval to use dispersants from the RRT. This occurred at 0630 on March 24, approximately six hours after the commencement of the spill. A ten page formal request for dispersant use was submitted by Alyeska at 0842. The FOSC then convened a conference for 1000 to discuss the dispersant issue. Delays in the arrival of key personnel resulted in the meeting being postponed until 1200. Deliberations continued until 1510 because the Coast Guard had many concerns regarding whether or not the dispersant would work, and those concerns were being weighed against concerns of local fishermen regarding the potential impact of the dispersants on the fisheries, among other things. By the adjournment of the meeting, the leading edge of the spill had entered zone 1 and the FOSC approved a trial application of dispersant on the leading edge of the slick. The initial trial application was administered at 1800 (approximately sixteen hours after the onset of the spill) and the results were inconclusive; observers had difficulty in determining the effectiveness of the dispersant due to cloudy skies and fading light. Over the next two days discussions on dispersants and trial applications continued with little success. By the third day of the spill, the weather had deteriorated and precluded the application of

dispersants by airplane. By that time, the window of opportunity for successful dispersant use had passed.[93]

The issue of dispersants became a source of bitter controversy during the post-incident litigation. Both Exxon and Alyeska claimed that the decisions for dispersant use in this particular incident were too slow and had hindered their ability to make use of the dispersant option.[94] This was an important point of contention for these companies because if the decisions had been quicker, and if they had been able to effectively utilize dispersants, they might reasonably have been able to preclude at least some percentage of the shoreline damage experienced. Others agreed that the dispersant decision process was a problem. For example, the FOSC himself later observed that the long delay leading up to the first dispersant test may have handicapped its chances for success.[95] During post-incident congressional hearings, many witnesses acknowledged the problem with the existing dispersant use policy in light of what happened in Alaska. For instance, the Director of the Chemical Emergency Preparedness and Prevention Office of the EPA stated that one of the lessons learned from Valdez was that the decision-making processes for determining what technology to use needed to be streamlined.[96]

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[93]U. S. Coast Guard, Federal On-Scene Coordinator's Report T/V *Exxon Valdez* Oil Spill (Washington, D. C.: GPO, 1993): 40-45.

[94]U. S. Congress, House, Committee on Public Works and Transportation, National Oil Spill Contingency Planning and Response Capabilities, 101st Cong., 1st Sess., 18 June 1991: 103.

[95]U. S. Coast Guard, Federal On-Scene Coordinator's Report, 41.

[96]U. S. Congress, House, Committee on Merchant Marine and Fisheries, Oil Spill Response, 101st Cong., 1st Sess., 26 July 1989: 106.

Ironically, Alaska was one of the few places that had an actual dispersant pre-approval plan in place and the management of the dispersant issue was actually handled much better than in previous spills. Dispersants were considered as an option and a consensus regarding their use was ultimately reached. Although the initial decision was delayed and probably prevented the first trial application of dispersants from being effective, sixteen hours was a record in the United States as far as reaching a dipsersant use decision.[97] Despite these facts, the *Exxon Valdez* incident simply served as a dismal reminder that U. S. dispersant use policy continued to preclude the effective operational use of dispersants as an oil spill response option. Consequently formal legislation was called for to attempt improvement.

3.3 OPA 90 CHANGES TO THE DISPERSANT USE POLICY

The Oil Pollution Act of 1990, passed August 18, 1990, was a direct result of *Exxon Valdez* oil spill. The law sought to comprehensively address many of the problems associated with both oil spill prevention and response that were brought to light during that tragedy. With regard to dispersant use policy, OPA 90 made only slight changes, but ones that could be significant nonetheless.

The Oil Pollution Act of 1990 did not change the basic purposes of the National Contingency Plan. The purposes remained as before to provide for efficient, coordinated, and effective action to minimize damage from oil and hazardous substance

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97 Ferriere, 114.

discharges. Again, such action could include containment, dispersal, and removal. Also, the requirement for a schedule of dispersants that may be used, identification of waters in which such dispersants may be used, and identification of the quantities of dispersant that could safely be used did not change.[98]

OPA 90 did, however, establish a new planning entity within the National Response System. Area Committees, comprised of appropriate qualified personnel from various Federal, State, and local agencies, and under the direction of the Federal OSC for each Area[99], were established and tasked with developing Area Contingency Plans (ACPs).[100] Area Committees were also specifically tasked with working with "State and local officials to expedite decisions for the use of dispersants and other mitigating substances and devices."[101] In addition, the Area Contingency Plan was to "describe the procedures to be followed for obtaining an expedited decision regarding the use of dispersants."[102] Thus these new planning bodies were strictly mandated by law to address dispersant issues prior to a spill so that rapid decisions during a spill were possible.

Consequently the National Contingency Plan was revised to reflect these changes. Under the new Plan dated September 15,

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[98]Oil Pollution Act of 1990, U.S. Code Congressional and Administrative News, vol. 1 (1990), Section 4201(d) {hereinafter cited as OPA 90}.

[99]"Areas" designated for the purposes of Area Contingency Plans, in the coastal zone, coincide with the Coast Guard Captain of the Port boundaries as outlined in 33 Code of Federal Regulations Part 3.

[100]OPA 90, Sec. 4202(a)(4).

[101]Ibid., Sec. 4202(a)(4)(b)(iii).

[102]Ibid., Sec. 4202(a)(4)(c)(v).

1994, RRTs and Area Committees are to address the desirability of using dispersants listed on the NCP Product Schedule. RCPs and ACPs shall, as appropriate, include applicable pre-authorization plans and address the specific contexts in which dispersant products should and should not be used. As before, if such plans are approved through the concurrence network during the planning phase, the FOSC is authorized to use dispersants in the prescribed circumstances without formal concurrence at the time of the spill.[103] Members of the concurrence network are mandated to review and either approve, disapprove, or approve with modifications the pre-authorization plans.[104] This provision forces the concurrence network to seriously consider dispersant use; they are no longer allowed to leave the dispersant issue unresolved by failing to make a decision. The NCP also states that the Area Contingency Plan shall provide for the pre-approval of specific countermeasures or removal actions that, if expeditiously applied, will minimize adverse spill-induced impacts to fish and wildlife resources, their habitat, and other sensitive environments.[105]

Thus the revised NCP maintains the previous concurrence network decision process, which has been the traditional stumbling block to dispersant use, but only in cases not addressed by pre-authorization plans. More importantly, it mandates that RRTs, Area Committees, and members of the

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[103]U. S. Environmental Protection Agency, "National Oil and Hazardous Substances Pollution Contingency Plan," Federal Register (15 September 1994), vol. 59, no. 178, Section 300.910(a) {hereinafter cited as 1994 NCP}.

[104]Ibid.

[105]Ibid., Sec. 300.210(c)(4)(ii)(D).

concurrence networks work through the dispersant issues prior to a spill event, and that Area Committees develop pre-authorization plans as a component of the new Area Contingency Plans. The intent of these requirements is to allow for expedited decisions regarding response options during a spill so that the most efficient and effective method can indeed be used. If successful, these new pre-authorization plans should help to quicken dispersant use decision-making and thereby to overcome the primary obstacle that has in the past precluded the United States from the capability to use this important oil spill response tool.

Chapter 4 Implementation of the New Dispersant Use Policy

4.1 POLICY IMPLEMENTATION - GENERAL

Despite these new statutory requirements for the development of dispersant pre-authorization plans and procedures for expedited decisions, it is the actual implementation of these policies that will determine whether or not they will be successful. Implementation is the stage in the policy process when the policy is moved from the political realm to that of administration, and the bureaucracy is actually responsible for filling in the details, or putting the new program into effect.[106] In the case of the dispersant policy, implementation may be viewed as the development of the actual pre-authorization plans, documents which outline specifically where and under what conditions dispersants may be used in each Area, and which allow the FOSC alone to make the decisions concerning the use of dispersants on a particular spill based on the stipulations in the plan. The success of these plans, then, can be determined based on the ability of the plan to allow the FOSC to make rapid dispersant decisions without outside interference using information in the plan. This will increase the viability of dispersant use, providing a functional decision process, as well as increased confidence in the decision process needed for proper logistical preparation as explained above.

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[106] Charles O. Jones, An Introduction to the Study of Public Policy, 3rd ed. (Monterey: Brooks/Cole Publishing Co., 1984), 164.

With this is mind, the process of developing the pre-authorization plans is a vitally important component contributing to the ultimate success of the new dispersant pre-authorization plans. In this case, the process must allow for the participation of all interested parties in the development of the plans, that is, in the decisions regarding the use of dispersants in a particular area. Otherwise, the potential actions of such parties or groups, if they disagree with the contents of the plans, could undermine the plans and thereby sabotage their chances for success at the time of a spill. The following sections will describe the role of interest groups in oil spill response in general and the importance of incorporating these groups in the spill response planning processes, both for overall oil spill response activities, as well as those involving dispersants.

4.2 OIL SPILL RESPONSE MANAGEMENT - GENERAL

In order to understand the impact that interest groups can have on spill response decision-making, it is first useful to understand some of the dynamics of oil spill response in general. As was stated above, significant oil spills often have far-reaching impacts and cause extensive damage, both in economic and ecological terms. Thus, when an oil spill occurs, a large number of individuals and groups of people become impacted in some way and they therefore have an interest in the spill response and its ultimate outcome. These groups and individuals are termed "stakeholders" in that they have a stake in the outcome of an oil

spill.[107] One important group of stakeholders is the environmental stakeholders, or those concerned with the perceived adverse effects of oil spills on the natural and man-made environment. Such stakeholders include environmental conservation groups, citizen advocacy groups, resource users, and community groups. (See Figure 3).

Since the goals of any oil spill response include satisfying the goals and objectives of the government, the responsible party, and the public (which includes the interest group stakeholders named above),[108] the optimum method of response management would seem to allow for all of these groups to be involved in the decision-making that occurs during a spill. This is indicative of an "open" spill response management system, which is characterized by flexibility, improvisation by spill responders, and decentralized decision-making.[109] While this type of response management system is beneficial in terms of including all interests in the decisions, it is relatively ineffective in terms of reaching quick decisions that are necessary during the emergency/crisis situation of a significant spill. The more effective type of management system for oil spill response is the "closed" system which is characterized by centralized decision-

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107"Stakeholders" are more precisely defined by the Coast Guard as those individuals or organizations that have a vested interest in an event or the actions being taken in response to an event, and also have the power to directly or indirectly influence the actions being taken or the organizations involved. See U. S. Coast Guard, Stakeholder Lesson Plan, OSC Crisis Management Course, (Yorktown, VA, 1995).

108Ann Hayward Walker, John R. Harrald, Donald L. Ducey, and Stephen J. Lacey, Implementing an Effective Response Management System, Tech Report IOSC-001 prepared for the 1995 International Oil Spill Conference, (Washington, D. C.: American Petroleum Institute, 1994), 20.

Figure 3

Examples of Environmental Stakeholders and Their Concerns

Type of Stakeholder	Form of Concern	Effect on Response
State Trustee/RRT Rep	Regulatory; official lead local area rep. for public	Significant Influence on the timing and type of proposed response actions - can employ political and permitting controls
Federal Trustee/RRT Rep	Regulatory; rep. of the public interest for certain resources	Significant influence on the timing and type of proposed response actions - can employ political and permitting controls
Conservation Group	Established groups; custodial in approach; may have national/international membership	Potentially significant depending upon the incident; have the resources to sustain their activity for the duration of the incident
Advocacy/Citizen Group	Established groups; broad environmental concerns; often adversarial or confrontational; may have national/international membership	Usually high profile - generally intense but more short-term involvement; have the resources to sustain their activity if they choose
Resource Users	Economic/Recreational/ Cultural dependency upon resources at risk galvanizes their concern	Very vocal; sustained interest and involvement because they are dependent upon potentially affected resources; direct effect on them
Media	Assertive efforts to obtain information; it is their job to obtain information	Intense involvement for as long as the incident is newsworthy
Citizens, community groups, academia	Informal groups; very concerned about environmental effects; direct or indirect inquiries, may volunteer assistance	Can be very vocal, but may be less visible to the media and try for direct contact with responders.

Source: Adapted from Concerns of Environmental Stakeholders table from OSC Crisis Management Course, USCG Marine Safety School, Yorktown, VA: 1994.

making and the direction of operations by a single person. The problem with this type of system is that it fails to account for interests outside of the formal response organization, and therefore its actions are less likely to be perceived as successful by external organizations, including the public.[110]

Because neither of these oil spill response management systems in the strict sense is practicable, oil spill response planning has emerged to bridge the gap between these two methods. The process of planning serves to bring together all appropriate interests in order to set goals, to agree upon courses of action that will be taken in the event of a spill, and most importantly to resolve conflicts, before the spill actually takes place. Pre-spill planning allows for the identification of stakeholder interests that can reasonably be anticipated to emerge at spill time, and the incorporation of these concerns into planning decisions. This type of approach gives various stakeholder interests "full involvement in setting priorities and other strategic issues, while recognizing the compelling need, in the heat of battle, to have only one commander in chief."[111] Considering that pre-spill planning is critical in terms of resolving potential conflicts during oil spill response and providing for an effective decision-making capability at spill

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[109]Ibid, 1.

[110]Ibid, 2.

[111]Joseph E. Lees, "Contingency Planning, Contractor Requirements, and Oil Pollution Act of 1990 Implementation," in 1993 International Oil Spill Conference Proceedings, (Washington, D. C.: American Petroleum Institute, 1993), 52.

time, it is equally critical that all interested parties, or stakeholders, that are likely to emerge with concerns at spill time, be involved in this planning. Special interest groups, especially environmental interest groups, have emerged in this sense, as will be discussed below, and therefore comprise a significant group of organizations whose views must be considered during spill response and spill response planning.

4.3 WHY SPECIAL INTEREST GROUPS HAVE BECOME INVOLVED IN OIL SPILL RESPONSE - PUBLIC PARTICIPATION IN POLICY-MAKING AND ENVIRONMENTAL CONCERN

"Special interest groups are demanding a larger role in making spill-related decisions."[112] In fact, interest groups can be expected to emerge at the time of a spill to make their views known and to attempt to influence spill response decisions. The reasons underlying this phenomenon are not known exactly, yet it can likely be attributed in part to certain fundamental societal trends that have evolved over the past few decades in the United States.

The first reason centers around the general desire of Americans to be involved in governmental decision-making. Over the past several decades, Americans have demanded a more direct role in governmental decision-making, thereby increasing likelihood that they will demand to participate in oil spill response decisions.

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[112]Ott, Lindstedt-Siva, and Walker, 75.

"In democratic society, it is an accepted value that individuals and groups will have the opportunity to participate in or be represented in decisions that affect them."[113] While this value is generally accepted and is rather obvious, the public has only relatively recently demanded to be more directly involved in governmental decisions, and this has been in response to general dissatisfaction with government and society.[114] As one author wrote in the 1970's, "there has been a growing concern that the public, or at least significant portions of it, has developed an increasing feeling of alienation towards governmental decision-making. In some instances, a profound distrust of the entire system has developed."[115] As a result, pressure groups have increasingly been established as a means for the public to influence planning and policy-making.[116] This establishment of groups is considered part of the "citizen initiated participation movement," a movement characterized by citizen action (in the form of grassroots organizations, public interest groups, consumer groups, etc.) which influences and monitors government.[117] The point here is that "there is a limit

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[113]Helen M. Ingram, "Information Channels and Environmental Decision-Making," in Environmental Concern, ed. Arvin W. Murch (New York: MSS Information Corp., 1974), 159.

[114]Stuart Langton, "Citizen Participation in America: Current Reflections on the State of the Art," in Citizen Participation in America, ed. Stuart Langton (Lexington, Mass: D. C. Heath and Company, 1978), 1.

[115]W. R. Derrick Sewell and J. T. Coppock, "A Perspective on Public Participation in Planning," in Public Participation in Planning, eds. W. R. Derrick Sewell and J. T. Coppock (New York: John Wiley & Sons, Ltd., 1977), 1.

[116]Ibid, 2.

[117]Langton, 1.

to how much the public will tolerate in silence,"[118] and citizens have come to expect the ability to participate in and to influence government decisions. Logically, if government officials fail to consider public opinion, they can expect vocal opposition, a situation which may lead policies and programs to be perceived as failures, and almost definitely leads to a decrease in their effectiveness.

In fact, the government has recognized the importance of involving the public in decisions in order to promote the success of programs. The "citizen involvement" movement, which was initiated by government and stressed the importance of involving citizens in improving and gaining support for administrative decisions and government programs, emerged in the 1940's in the form of the Administrative Procedures Act.[119] According to the Act, agencies developing rules and regulations to implement legislation were required to, among other things, provide for public notice and comment during the rulemaking process. In enacting these requirements, Congress apparently recognized the vested interest of people directly affected by public programs, and professed that participation was henceforth a right rather than a privilege.[120] This ideal has been repeated time and time

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[118] Arvin W. Murch , "Who Cares About the Environment?" in Environmental Concern, ed. Arvin W. Murch (New York: MSS Information Corp., 1974), 17.

[119] Administrative Procedures Act. U. S. Code Congressional Service. (1946), p. 228.

[120] Walter A. Rosenbaum, "Public Involvement as Reform and Ritual: The Development of Federal Participation Programs," in Citizen Participation in America, ed. Stuart Langton (Lexington, Mass: D. C. Heath and Company, 1978), 83.

again and today almost all new major federal legislative programs contain citizen participation requirements.[121] In addition, requirements for active participation in administrative policy-making have proliferated at all levels of government.[122]

One important example of participation requirements in environmental policy is seen in the National Environmental Policy Act of 1969 (NEPA).[123] This law requires that agencies prepare environmental impact statements (EISs) to accompany proposals for legislation and other major federal actions significantly affecting the quality of the human environment.[124] These EISs must then be made available to the public and to other federal agencies with environmental responsibilities, so that these entities may comment on the proposal. While the substantive impact of NEPA in terms of impact on decisions has been called into question,[125] the law itself demonstrates the recognition by policy-makers that citizen and public interest group participation is important and necessary in order for government policies to work.

Besides increasing public desire to participate in governmental decisions, the second overarching societal trend

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[121]Langton, 3.

[122]Nelson M. Rosenbaum, "Citizen Participation and Democratic Theory," in Citizen Participation in America, ed. Stuart Langton (Lexington, Mass: D. C. Heath and Company, 1978), 43.

[123]National Environmental Policy Act of 1969. U. S. Code Congressional and Administrative News. vol. 1 (1969), p. 950. 42 U. S. C. pp.4321-4347.

[124]National Environmental Policy Act of 1969, (NEPA), Section 102(c).

[125]Helen M. Ingram and Scott J. Ullery, "Public Participation in Environmental Decision-Making: Substance or Illusion?" in Public Participation in Planning, eds. W. R. Derrick Sewell and J. T. Coppock (New York: John Wiley & Sons, Ltd., 1977), 130.

that has led to the increased involvement of interest groups in oil spill response is the growth of environmental concern in the United States and the subsequent emergence of environmental organizations. Since the 1970's, there has been a "remarkably widespread upsurge" of interest in the quality of the environment.[126] Also, there has been evidence that a large segment of the American public has come to share a level of concern for the environment great enough to become personally committed to the problem and willing to do something about it.[127]

Some obvious reasons for the initial rise in concern over the environment have been cited as the deterioration of certain easily perceived environmental conditions, such as urban smog, the proliferation of solid wastes, the endangerment of many wildlife species, and oceanic oil spills.[128] Another factor contributing to elevated environmental concern deals with increased expectations concerning what the environment should be like and therefore dissatisfaction with "the system" in place to address these matters.[129] This rise in environmental concern was manifest in the development of public environmental interest groups, which blossomed in the 1960's and grew rapidly in the 1970's.[130] As alluded to above, these groups emerged as a result of a wave of skepticism surrounding government institutions, a

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[126]Anthony Downs, "Up and Down with Ecology, the Issue-Attention Cycle," in Environmental Concern, ed. Arvin W. Murch (New York: MSS Information Corp., 1974), 78.

[127]Murch, 17.

[128]Downs, "Up and Down with Ecology," 83.

[129]Ibid, 84-5.

[130]Graham K. Wilson, Interest Groups in the United States, (New York: Oxford University Press, 1981), 86, 101.

substantial decline in trust in government in the 1960's and 70's, and the feeling of environmentalists that their common interests could only be protected by such groups.[131]

Notwithstanding the emergence of environmental interest groups in the 1970's, concern over the environment and the growth of environmental groups continues. While the issue of environmental protection has had its ups and downs, it has been a persistent concern. Not only has public support for environmental protection persisted, it has risen substantially in recent years.[132] In addition, when viewed in terms of the issue-attention cycle,[133] the issue of environmental quality has certain characteristics which are expected to keep it from moving to the "post-problem stage," that is, when the issue is replaced at the center of public concern and enters a prolonged limbo. The most prominent factors that are expected to prevent a rapid decline in public interest in environmental issues are: (1) many kinds of environmental pollution are much more visible and clearly threatening to people than most other social problems; (2) environmental disasters such as oil spills spark and help to sustain public interest; and (3) environmental degradation is an issue that threatens almost everyone, not just a small percentage of the population, and it is not a strictly politically divisive

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[131]Ibid, 13, 87.

[132]Christopher J. Bosso, "After the Movement: Environmental Activism in the 1990's," in Environmental Policy in the 1990's, eds. Norman J. Vig and Michael E. Kraft (Washington, D. C.: Congressional Quarterly, Inc., 1994), 31.

[133]The "issue-attention" cycle is a model which describes the progression of public attitudes and behavior concerning most key domestic problems. Instead of remaining focused on any one issue for very long, the American public moves through the cycle and becomes continuously engaged in new issues as time progresses. See Downs, "Up and Down with Ecology."

issue.[134] Also, if reaction to oil spills is a symptom of current environmental concern, the fact that even minor spills today attract a high degree of public attention is evidence that the public is increasingly aware and vigilant over environmental damage.[135]

Environmental interest groups themselves are also on the rise. There are thousands of these groups currently in existence and their membership numbers into the millions.[136] Figure 4 shows the increasing membership trends among selected national environmental groups from 1970 to 1990. In addition, there has been a substantial rise in the absolute number of environmental organizations over the past several years.[137]

Thus it has been shown that both environmental concern and environmental interest groups are on the rise in the United States, and the public in the form of these groups increasingly desires to participate in governmental decisions, especially those concerning the environment. These societal trends provide the foundation upon which increased public interest in oil spill response, and the potential for increased public/interest group involvement in spill response activities, is built. It is these trends which create the potential for the interference of

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[134]Downs, "Up and Down with Ecology," 86.

[135]Karen Zuidinga, Noel Boston, and Ian Robertson, "Managing Public Support During Oil Spills," in Oil Spills: Management and Legislative Implications, eds. Malcolm L. Spaulding and Mark Reed (New York: American Society of Civil Engineers, 1990), 335.

[136]Daniel H. Henning, Environmental Policy and Administration, (New York: American Elsevier Publishing Co. Inc., 1974), 24.

[137]Helen M. Ingram and Dean E. Mann, "Interest Groups and Environmental Policy," in Environmental Politics and Policy - Theories and Evidence, ed. James P. Lester (London: Duke University Press, 1989), 136.

Figure 4

Membership Trends Among Selected National Environmental Groups, 1970-90

Group	1970	1975	1980	1985	1990
Sierra Club	150,000	170,000	181,000	364,000	600,000
Nat'l Audubon Society	105,000	275,000	400,000	550,000	575,000
Nat'l Parks & Conservation Assoc.	50,000	@50,000	31,000	45,000	100,000
Wilderness Society	44,000	50,000	35,000	150,000	350,000
Nat'l Wildlife Federation	3.1 mill.	3.7 mill.	4 mill.	4.5 mill.	5.8 mill.
Environmental Defense Fund	nonmbr	30,000	46,000	50,000	150,000
Natural Resources Defense Council	nonmbr	35,000	42,000	50,000	125,000

Source: Bosso, Christopher J. "After the Movement: Environmental Activism in the 1990's." In Norman J. Vig and Michael E. Kraft, eds., Environmental Policy in the 1990s. 2nd ed., (Washington D. C.: Congressional Quarterly, Inc., 1994):36.

interest groups in oil spill response management. Thus these concepts will be extended below to specifically demonstrate the importance of the oil spill response planning process, as well as the involvement of appropriate interest groups in that process.

4.4 THE IMPORTANCE OF INTEREST GROUP PARTICIPATION IN OIL SPILL RESPONSE PLANNING

It has been established above that interest groups, especially environmental interest groups, are currently interested in oil spill response decisions and are likely to increasingly desire involvement. Despite the fact that their involvement may compromise the efficiency of spill response management decisions, their views cannot be ignored by spill managers. This is due to the political power of these groups, as well as the obligation of government officials, especially administrators in this context, to account for the views of these public entities, both to uphold the values of democracy, but most importantly to maintain support for the agency.

First the political power of these groups will be discussed. In the words of one author of the environmental movement, "in the political arena, the environmentalists have become an interest group of sufficient power that they cannot be ignored."[138] These groups exert powerful and continuous force upon policy formulation as well as implementation through formal and informal

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[138]Stan L. Albrecht, "Legacy of the Environmental Movement," in Environmental Concern, ed. Arvin W. Murch (New York: MSS Information Corp., 1974), 259.

interactions with congressmen and administrators.[139] And while it is true that the current organizations lean more toward political activity (such as lobbying, campaigning, electioneering, etc.), they are beginning to extend their involvement to all stages of the policy process. They are increasingly realizing the importance of following through to ensure that programs are implemented as intended, and to monitor the activities of administrators who take charge of implementation after program approval.[140] In addition, local environmental groups are proliferating and these groups are aggressively involved in modifying and influencing local policy decisions through expressions of their values and opinions.[141] Other ways in which environmental interest groups exert political pressure is through the media and the courts.[142] As a viable political force, then, both congressmen and administrators now more than ever, must be sensitive and responsive to the needs of these groups. While administrators are not popularly elected and may seem to be less influenced by political pressures than congressmen, they too have political concerns, which will be discussed below. Knowledge of these concerns are important in the context of this paper because they help to demonstrate the necessary components of successful administrative policy and program development, concepts which

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[139]Henning, 22, 25.

[140]Jack D. Kartez, "Crisis Response Planning," APA Journal (Winter 1984), 17.

[141]Henning, 27.

[142]Wilson, 95.

apply to dispersant use policies and the implementation of those policies in the new dispersant pre-authorization plans.

Administrators must be responsive to public interest groups for two reasons. The first is to support the democratic ideal that the government's job is, in essence, to serve the wishes of the people. Probably the more influential reason, however, deals with the practical reality of agency survival. It is well known that bureaucracies compete with one another for portions of the finite government budget and spend inordinate amounts of time and effort in the pursuit of obtaining "turf" to ensure their survival.[143] Bureaucratic agencies are caught up in the muddled soup of politics. They are paid by taxpayers and are overseen by elected officials. They rely on the support of legislators in terms of gaining the legislation that is beneficial to them as well as the appropriations that they need to successfully carry out their programs. The support from the legislators, however, comes indirectly via the public (and public interest groups) in that the public has control over whether or not the politician is re-elected. To sum this up, public and interest group approval is critical for agencies because these groups influence who gets elected into Congress, which ultimately determines the support that the agency receives from Congress in the form of legislation and appropriations. This is no secret and it has been said that Departments (and therefore agencies) are "subservient" to the

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[143]Much has been written on the politics of agency survival. Two good sources on this subject are: Chapter XVII "Bureau Territoriality" in Anthony Downs, Inside Bureaucracy, 4th ed. (Boston: Little, Brown, and Company, 1967), and Matthew Holden, "Imperialism in Bureaucracy," American Political Science Review (December 1966): 943-51.

relevant interest groups,[144] with the result that bureaucrats are reluctant to make unpopular and controversial decisions.[145]

Oil spill managers have in fact recognized the importance of involving interest groups in oil spill response management and planning. One of the critical success factors for oil spill response is said to be accounting for stakeholder interests.[146] Clearly the prevailing view in the oil spill response literature is that interest group views must be taken into account for spill responses to have the slightest chance of being successful. This point was also made several times during the Congressional hearings on the investigation into the *Exxon Valdez* oil spill. During the hearings, one congressman said of oil spill response, planning, and decisions, "the notion that this problem is going to be solved by keeping the environmentalists on the outside is a huge and costly mistake, a huge, huge costly mistake."[147] This recognition is also evident in the implementation guidance for the Area Contingency Plans. In this guidance, Area Committees are strongly encouraged to solicit advice, guidance, and expertise from all appropriate sources, which include environmental groups, concerned citizens, etc., in the development of the Area Contingency Plans.[148] Lastly, the importance of stakeholders is stressed during the On-Scene Coordinator's Crisis Management Course given by the Coast Guard.

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[144]Wilson, 124.

[145]Langton, 7.

[146]Walker, Harrald, Ducey, and Lacey, 47.

[147]U. S. Congress, Investigation, 103.

[148]U. S. Coast Guard, COMDTNOTE 16471, Establishment of Area Committees and the Development of Area Contingency Plans, dtd 30 Sept 1992..

During the course, two days are spent discussing the importance of taking stakeholder interests into account during oil spill response management, and examples are given to demonstrate possible ramifications of not doing so.[149] Four basic words written in the course lesson plan sum up the situation quite well. With regard to ignoring stakeholders during a spill, "try and you die" is the advice given.

Still, while the importance of accounting for stakeholder views has been realized, their inclusion in the spill response management team is not highly effective, as discussed above. Thus the emphasis has been placed on involving these groups in the spill planning process instead. The goal of this approach is ultimately to reduce or eliminate the likelihood that these groups will emerge at the time of a spill, demand that their views be taken into account, and thereby decrease the efficiency of spill management decisions. Coast Guard Admiral Henn explained that, by widening the community that is making the decisions in the planning process, "when the balloon goes up and you have a spill, you don't have folks that have local community concerns trying to override decisions that the government

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[149]The three examples of problems that have arisen due to failure to account for stakeholder interests are (1) the U.S. Department of Energy became involved in a spill due to complaints of oil companies that the Coast Guard was "freezing out New England" by closing a waterway in New Jersey; (2) After feeling that they had been ignored, several small environmental groups loudly raised complaints about medical waste washing up on the shore. As a result, the Coast Guard was required to survey hundreds of miles of beach which yielded only two shopping bags of garbage (none of which contained medical waste; and (3) A Coast Guard office in Savannah was subject to Congressional hearings in 1987 due to a 1986 spill of 50,000 gallons simply because the manager of a wildlife refuge felt he was not being heard. See U. S. Coast Guard, Stakeholder Lesson Plan.

officials have made in preparation for responding to that spill."[150] This is because the participants, in being involved in the planning, understand better the risks involved, and become aware of compromises and trade-offs that must sometimes be made in both spill response and planning.[151] They are forced to confront the realities of policy-making and may develop more realistic judgments about what can be expected from spill response.[152] The basic assumption is that if interest groups or the public is involved in planning, even if their advice is rejected, they may feel that they have at least had their day "in court" and are more likely to accept policy decisions,[153] thereby decreasing the likelihood that they will interfere at spill time.[154]

Although the preceding has predominantly focused on the importance of interest group participation in general oil spill response planning, the same concepts hold true, albeit to a greater extent, for dispersant use planning. The criticality of interest group participation in dispersant planning is perhaps

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[150]U. S. Congress, House, Committee on Merchant Marine and Fisheries, Oil Pollution Act of 1990 National and Area Contingency Plans, 102nd Cong., 2nd Sess., 24 Sept 1992: 31.

[151]U. S. Congress, National Oil Spill Contingency Planning, 21.

[152]Timothy Beatley, David J. Bower, and William H. Lucy, "Representation in Comprehensive Planning," Journal of the American Planning Association, vol. 60, no. 2 (Spring 1994): 195.

[153]Ingram and Ullery, 123.

[154]It should be noted here that although participation should logically prevent or at least decrease the potential for emergence, this "participation thesis" has not been proven. In fact, in many studies greater citizen involvement in agency planning did not necessarily lead to greater public acceptance and therefore greater ease in program accomplishment. See Rosenbaum, Walter, 92. Still, the assumption by spill responders and government officials in general is that participation is positive and at least increases the potential for program success.

greater than that in general oil spill response planning due to three factors, each of which tends to escalate the potential for conflict regarding dispersant use decisions.

First, there is a basic dichotomy between the views of the oil industry and those of environmental groups on dispersant use. Typically the oil industry has been in favor of more liberal dispersant use, both because dispersants are a cost effective response option, and because they (dispersants) have the potential to significantly reduce ecological and economic damage (see above). In fact, the American Petroleum Institute (API) has been highly involved in dispersant research. The organization conducted numerous field studies on dispersants and published the results in a booklet entitled The Role of Chemical Dispersants in Oil Spill Control.[155] In addition, API contributed in large part to the development of effective methods for the application of dispersants by air.[156] As a result of its research, API espouses the belief that the use of chemical dispersants should be considered as a primary response option for major offshore oil spills.[157] Another industrial entity, the Louisiana Offshore Oil Port (LOOP), has also been active with various agencies trying to advance the knowledge and understanding of dispersants.[158]

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[155]U. S. Congress, Investigation, 57.

[156]U. S. Congress, House, Committee on Science, Space, and Technology, Oil Spill Research Needs, 101st Cong., 1st Sess., 7 Sept 1989, 162.

[157]Ibid.

[158]U. S. Congress, Senate, Committee on Commerce, Science, and Transportation, Exxon Oil Spill, 101st Cong., 1st Sess., 10 May and 20 July 1989, 304.

On the other hand, other interest groups, namely environmental groups and resource users (i.e. fishers) have maintained more conservative views on the utility of dispersants. Many opt for the "precautionary principle," believing that more research needs to be conducted on the impacts of dispersants on all types of biota, that baseline data on ecosystems must be compiled prior to any dispersant use in order to determine long term impacts, etc. A fisher from Prince William Sound who testified during the *Exxon Valdez* hearings noted that the oil industry made a strong push for dispersant use during the response. She obviously thought this was inappropriate, stating that dispersant use was "the preferred option for the oil industry [because it rendered the oil] out of sight, out of mind."[159]

Thus the prevailing views of dispersants in the environmental and industrial communities create the potential for conflict regarding dispersant use during actual oil spills. This potential for conflict is enhanced due to the difference of these groups with regard to access in the oil spill response decision-making system. The oil industry, as the entity responsible for the spill and for the cleanup (the RP or responsible party), is formally involved in spill management decisions as a bonafide member of the Unified Command.[160] Environmental and other

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[159]U. S. Congress, National Oil Spill Contingency Planning, 486.

[160]The "Unified Command System" is the response management system in which several agencies and individuals with jurisdictional oil spill response responsibilities work as a team to produce coordinated and effective decisions. The current NCP, in Sect. 300.105(d), articulates this concept as the basic framework for the response structure under the National Response System. In the current response management literature disseminated by the Coast Guard

interest groups have no formal access to the response management system. Because these groups have limited opportunity to influence decisions at the time of the spill, they are more likely to emerge in other ways in order for their views to be heard, making the need for resolving conflicts ahead of time even more critical.

The third factor that creates the potential for conflict is that dispersant use remains controversial. There is no disputing that dispersant use involves trade-offs. People or groups concerned with the conservation of various resources need to participate in the planning to understand and appreciate the necessary trade-offs so that they might understand if and when their resource might have to be sacrificed for another.

Lastly, dispersant use is a fairly technical issue. The general public and many interest groups do not fully understand the issues surrounding dispersants. Thus they may harbor incorrect knowledge or, worse yet, they may be easily swayed to oppose dispersant use during a spill due to information that is distributed (by the media or other interest groups, for example), that may not be factually accurate. Without specialized training or some type of education on the dispersant issue, interest groups become a wildcard and may potentially interfere with spill management decisions based on unfounded information.

Thus the potential for conflict regarding dispersant use decisions is relatively high, a fact which underscores the

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for the use by Area Committees, the Unified Command is considered to consist of the federal government, the state government, and the responsible party.

importance of both planning for dispersant use and including all interested parties in this planning. The implications of failing to plan for dispersant use decisions is, as we have seen, a matter of history. Lack of pre-spill planning has resulted in the inability to use dispersants in the United States, a condition that has been recognized and addressed in the current requirements for dispersant pre-authorization plans. The implications of failing to involve all interested parties in dispersant use planning are more a matter of speculation but can be reasonably forecast.

Failure to involve interest groups in dispersant use planning can be expected to undermine the success of these plans, both over the short and long terms. Success of the plans is deemed to be measured in terms of their ability to generate rapid and beneficial dispersant decisions. In the short term context, interest groups that have not been involved in planning decisions may emerge at the time of the spill and interfere with decision-making. Such groups are likely to raise concerns that were not taken into consideration during the planning process but which cannot be ignored by the FOSC. The result is that the FOSC must consider these views at the time of the spill and, even if the decision outcome does not change, precious time will have been spent in the deliberations, thereby reducing the likelihood of a quick and effective dispersant decision. Obviously such a scenario would significantly handicap the dispersant pre-authorization plan with regard to its successful implementation at spill time. Instances of such interest group interference in

dispersant use decisions are not abundant. This is because of the scarcity of occasions upon which dispersants have even been considered as a response option in the United States. The point, however, can be sufficiently illustrated by the *Exxon Valdez* oil spill response. As stated above, there was a dispersant pre-authorization plan in place for the Valdez area when the *Exxon Valdez* ran aground. When it came time for the FOSC to make the decision regarding dispersant use, however, he was obliged to consider the views of local fishers who had obviously not participated to the extent necessary in the planning process to preclude their emergence. Accounting for these new concerns contributed to a rather slow decision by the FOSC, a decision later claimed to be so slow that it prevented effective dispersant use (see above).

It could be argued that interest groups cannot be mobilized quickly enough, or do not have the access to spill response decision-makers, to directly interfere with spill-time dispersant decisions. This might be true in certain instances. However, in such cases these interest groups are likely to take actions while the response is in progress, or after the spill, which are likely to have negative consequences for dispersant pre-authorization plans over the long term. Such groups may voice opposition to the use of dispersants after they have been used on a spill, which is likely to show up in the media due to the ability of these groups to effectively use the media to achieve their objectives.[161] As was stated above, bureaucrats, and therefore

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[161]Wilson, 95.

oil spill managers, are extremely sensitive to negative public reaction because of its political implications. Any of this kind of "bad press" is likely to promote reluctance on the part of FOSCs to make single-handed dispersant decisions despite their ability to do so based on the pre-authorization plans. Instead, FOSCs might simply disregard the plans and attempt to gain agreement from all interested parties at the time of the spill so that they can demonstrate support if the decision is later criticized. Worse yet, they may disregard the option of dispersant use altogether, feeling that it is too politically risky, thereby leaving the dispersant pre-authorization plan on the shelf to collect dust, a fate common to many contingency plans. In either case, the dispersant pre-authorization plans will not be used as intended and dispersants may never be a viable response option, a long term potential impact of failing to include interest groups in dispersant pre-authorization planning.

It is obvious from the preceding discussion that interest groups must be involved in dispersant pre-authorization planning, and spill response planning in general, for the planning to be successful. Participation in dispersant use planning will increase general public knowledge on dispersants, help interest groups form valid views on dispersant use, help spill responders predict interest group reaction to dispersant use decisions, and decrease the potential that they will interfere with decisions at spill time or make vocal criticisms of the decisions after the spill due to uncertainty about dispersants. However, while Area

Committees are highly encouraged to involve outside interests in the Area planning process, this is not a definite indicator that such involvement has taken place or will take place. The amount and level of outside involvement has been left strictly to the discretion of each Area Planning Officer (a Coast Guard officer in the coastal zone). In most cases these officers have not received additional training in group dynamics or in effective methods to gain public participation in policy decisions, subjects which are complex and can be highly problematic.[162] Another complicating factor is that these officers are in most cases overburdened with work and, despite the best of intentions, may not be able to spend the time necessary to properly solicit and include interest groups in the planning. Planning for dispersant use poses a special problem in that the issues are of a technical nature. For this reason, in some cases subcommittees of specialists have been formed to deal with these issues. It is possible that interest groups may not have been invited to participate because they are thought to lack the knowledge required to make informed decisions, and that groups that have been invited may not attend, feeling they will not be able to contribute effectively to the discussion. The result is that

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[162]There are many obstacles to gaining effective public participation in policy-making. These include, among other things, the lack of motivation on the part of some groups to participate, and the fact that they must be "mobilized" rather than simply informed. See Rosenbaum, Walter, 91. Participation may also be seen as inefficient by the bureaucracy, as it causes increases in costs and delays in terms of policy-making, thereby creating further obstacles. See Barry Checkoway and Jon Van Til, "What Do We Know About Citizen Participation? A Selective Review of Research," in Citizen Participation in America, ed. Stuart Langton (Lexington, Mass: D. C. Heath and Company, 1978), 33.

interest group involvement in dispersant use planning today may not be at the level necessary to preclude the type of interference, at the time of the spill or afterward, that will ultimately undermine the effectiveness of the dispersant pre-authorization plans. If this is the case, it is important to recognize it and attempt to remedy the situation. Such attention is necessary to promote effective dispersant use, and to avoid wastes in time, money and energy spent planning for dispersant use, both on the part of government agencies and industry (i.e. stockpiling and dispersant research), if this technology will never realistically be used.

For these reasons, a study of the involvement of interest groups in dispersant use planning in the Northeast United States was undertaken. The study is discussed below.

Chapter 5 The Study

5.1 BACKGROUND AND PURPOSE

The Northeast United States, from Maine to New Jersey, comprises two federal regions and five Coast Guard Captain of the Port (COTP), or Federal On-Scene Coordinator, zones (see Figures 5 and 6). Also remember from above that each COTP zone comprises an Area for the purposes of Area Contingency Planning. Dispersant pre-authorization plans have been developed for each of these COTP zones, although each differs in terms of the plan provisions as well as the processes by which the plans were developed. Currently the plans are in varying stages of approval from their respective RRT concurrence networks. For example, the New York/New Jersey and Long Island Sound plans have been approved and in place since April of 1994 while the COTP Providence, Boston, and Portland plans have been submitted to the RRT but are (as of the writing of this paper) still awaiting approval.[163] While the specific provisions of each plan are not important, the processes used to develop the plans are relevant and will be addressed here briefly.

Basically, the COTP New York and COTP Long Island Sound Area Committees adopted the Federal Region II dispersant use guidelines, which were established by the Region II RRT. The development of these guidelines did not involve local interests/interest groups per se. However, to the extent that

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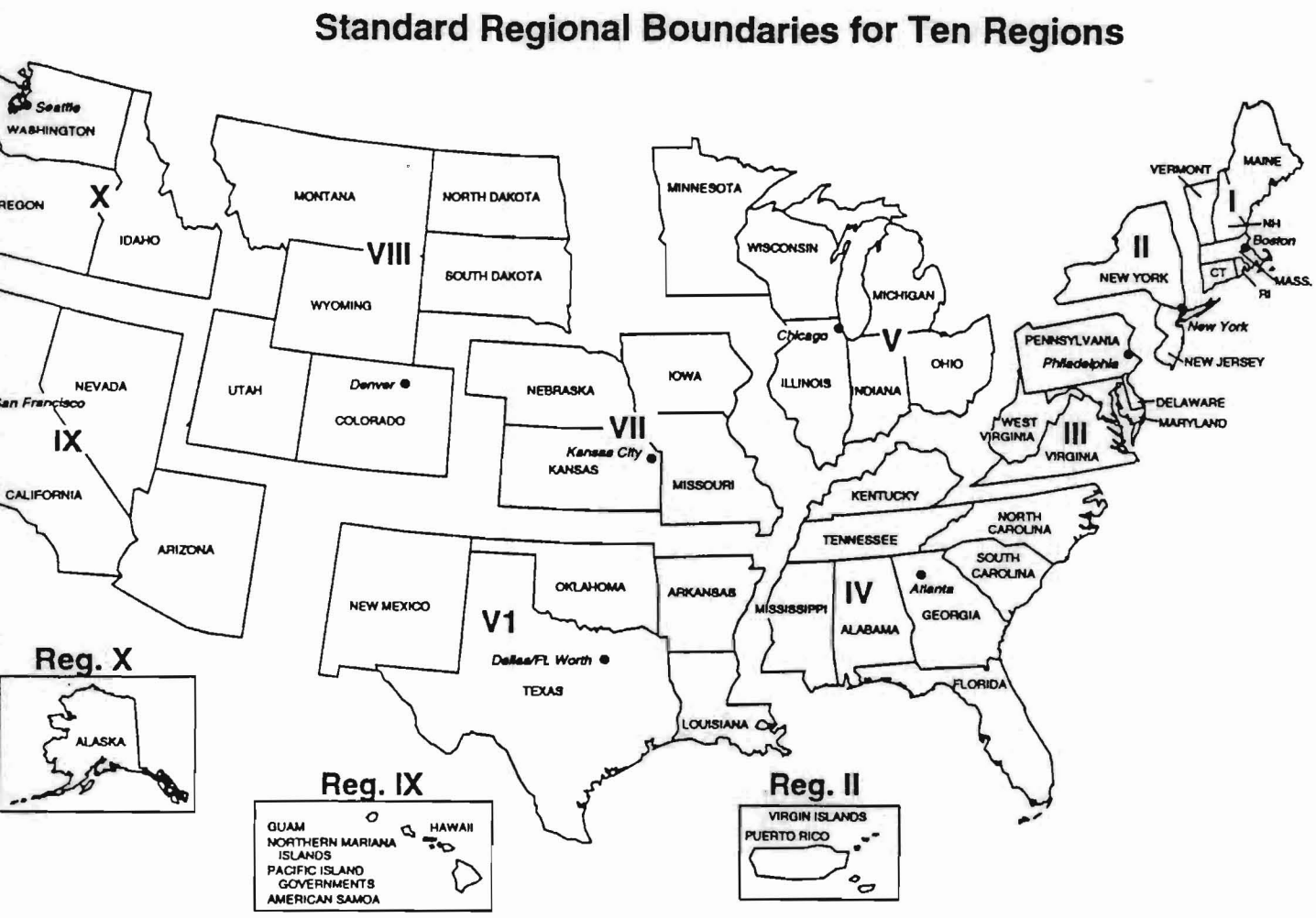
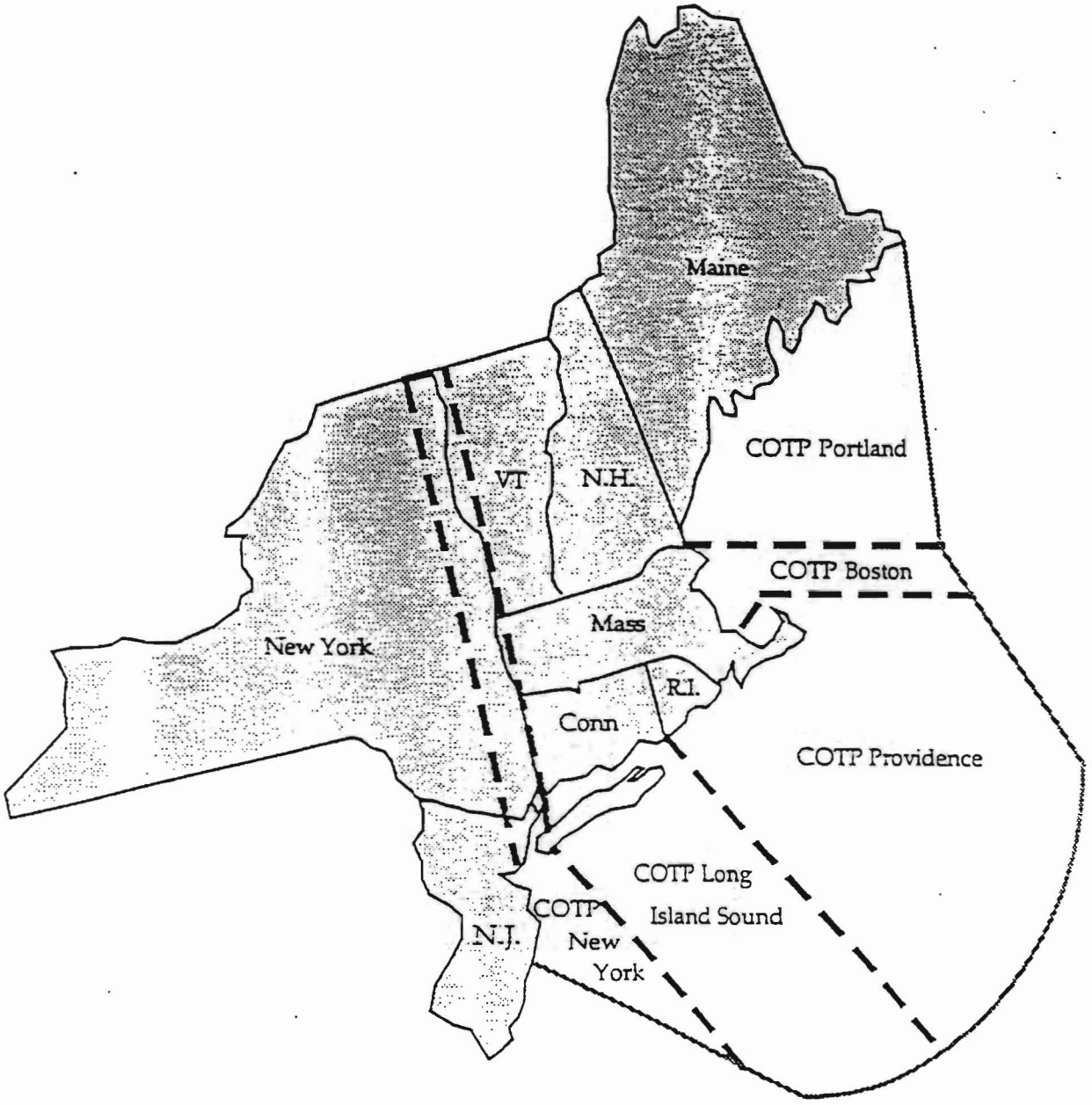
[163]Phone conversation with Scott Lundgren, First Coast Guard District Science Advisor to the District Response Advisory Team and Regional Response Team Representative, 25 September 1995.

Figure 5



Source: U. S. Environmental Protection Agency, "National Oil and Hazardous Substances Pollution Contingency Plan; Final Rule," Federal Register (15 September 1994), vol. 59, no. 178, p. 47428.

Figure 6



Captain of the Port Zones

First Coast Guard District

Seaward boundary extends to 200 miles or Canadian waters
Inland boundary defined by USCG / US EPA interagency agreement

Source: First Coast Guard District Marine Safety Division, Boston, Massachusetts.

interest groups were involved in the Area planning, they may have had a voice in whether or not these guidelines were accepted by the Area Committee. COTPs Boston and Providence developed a joint dispersant pre-authorization plan for Massachusetts and Rhode Island waters through a special chemical countermeasures working group comprised of members from both Area Committees. Lastly, the dispersant pre-authorization plan for the waters off of Maine and New Hampshire was put together by members of the COTP Portland Area Committee.

Because of the current stage of development of these dispersant use plans, as well as the different processes used, it would be instructive at this point to investigate the actual involvement of interest groups in this planning in order to forecast, as explained above, the likelihood of success for these plans. Again, it should be emphasized that there is no guarantee that, if interest groups do not participate, they will emerge to undermine the effective implementation of the plans at spill time, nor if they do participate, that they will not emerge. The logical assumption from the foregoing discussion, however, is that interest group participation in the development of dispersant use plans will decrease the potential for destructive interest group interference (both at spill time and afterward), and will therefore increase the likelihood that the new dispersant pre-authorization plans will be able to be implemented as expected.

Forecasting the success of these plans in terms of interest group participation may reasonably be based on four factors.

They are the difference between industry and environmental group views on dispersant use, the present and potential involvement of these interest groups in oil spill response and dispersant use planning, the satisfaction of these groups with regard to their participation in the planning process, and these groups' confidence in governmental spill response decision-making. Thus the purpose of the study is to measure these factors and to consider the implications of the results in terms of the future success of the new dispersant use plans in the Northeast. Another purpose is to determine the reasons for this involvement, or lack thereof, and to provide recommendations if necessary to enhance interest group participation and thus the likelihood of success for these plans.

It should be noted here that several other factors may potentially influence the future success of the dispersant use plans. These include, for example, FOSC training and confidence, the availability of dispersant equipment, and the potential interference of private individuals or citizens in spill response management. Such factors have not been addressed in this study due to time and resource constraints, but may provide useful subjects for future study.

5.2 METHODOLOGY

The study was limited to the Northeast region of the United States to provide a practicable working area. Also, because the activities and views of interest groups vary greatly among

different geographic regions,[164] data from each Area within the Northeast region was collected and interpreted separately, allowing for comparison between the Areas.

The data were collected via telephone survey.[165] One survey was developed for environmental interest groups and resource users, namely fishermen. These groups will be referred to as "interest groups" for the purposes of the study. The survey contains questions intended to measure the factors listed above. A copy of this survey is included as Appendix A.

Subjects of the survey were determined as follows. Sampling lists of appropriate interest groups were generated from the lists of environmental interest groups and fishermen's associations in each Area Contingency Plan (ACP). Groups on these lists which obviously have no concern with oil spill response were deleted. In addition, Coast Guard offices in charge of compiling the ACPs were contacted to provide names and telephone numbers of appropriate groups which may not appear on the ACP lists. The names of additional groups appropriate for the survey were obtained from other survey subjects during actual interviews. Lastly, the first set of survey questions was used as a screen to further determine the applicability of groups for

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[164]Walker, Harrald, Ducey, and Lacey, 74.

[165]Two references which were useful in terms of writing effective questions and useful questionnaires were Michael Quinn Patton, Practical Evaluation (Beverly Hills: Sage Publications, 1982), chapters 5 and 6, and Earl R. Babbie, The Practice of Social Research, 5th ed. (Belmont, CA: Wadsworth Publishing Company, 1989). Two good sources used for information on telephone survey research techniques were James H. Frey, Survey Research by Telephone, 2nd ed. (Newbury Park: Sage Publications, 1989), and Paul J. Lavrakas, Telephone Survey Methods, 2nd ed. (Newbury Park: Sage Publications, 1993).

the purposes of the survey. Only those groups which have an interest in marine environmental protection and which have, or might potentially, become involved in oil spill response issues were administered the entire survey.

Another important aspect of this survey was that an effort was made to interview someone within each organization knowledgeable both on the issue of oil spill response as well as the organization's involvement and interest in this issue. This was successful for the most part as the majority of the survey subjects held the position of Executive Director or one comparable within the organization. This precluded to the greatest extent possible inaccurate data which may have been received had persons less aware of the organization's views and activities been interviewed (such as a summer intern or the receptionist).

Surveys were conducted over two weeks and the data obtained is that which was able to be collected over those two weeks. It is stressed here that the sampling sizes used for this study were relatively small and are not considered statistically valid. There was no attempt to contact each and every interest group in each Area, nor to conduct random sampling of these groups, due to time and resource constraints. Consequently, the results of the study must be interpreted with care. The intention of the study is simply to provide a general indication of the involvement of interest groups in dispersant planning in the Areas of the Northeast, and the probable consequences for the success of these dispersant use plans. The results of the study will not, and are

not expected to, provide absolute conclusions with respect to these issues.

A second survey was constructed for industry interest groups, termed "industry groups" for the purposes of the study. This survey, a copy of which is included as Appendix B, is much less extensive than the interest group survey. Its main purpose is to provide insight into the industry's perspective on dispersant use in order to compare it with that of the other interest groups surveyed. Also, the involvement of industry groups in spill planning is not investigated in depth as it is for the other interest groups, since it is the other interest groups that are more likely to interfere with the effective implementation of dispersant use plans at spill time. Industry groups, on the other hand, are not likely to cause such problems because they are generally in favor of dispersant use. In addition, they are part of the actual decision-making hierarchy during spills, making them less likely to emerge during a spill with complaints about spill response decisions.

A sampling list of industry groups was compiled from a list of major oil carriers in the United States held by the United States Coast Guard Headquarters Vessel Response Plan Division. Because the vessels of these companies operate in waters all around the country, they are not specific to the Northeast region. However, they will serve to provide general indications of the industry views on dispersant use. In addition, industry groups specific to each Area were not used because they are more closely associated with local oil terminal facilities, the

managers of which are not likely to have a high interest in dispersant use due to the nearshore nature of their spills (dispersants are more an issue in terms of response to vessel casualties offshore). Again, the industry group sampling size is small and is not intended to reflect a statistically valid sample.

Appendix C contains the standard call sheet used to keep track of the number of calls made to each organization during the survey, as well as the disposition of each call. This tool was tremendously useful since several calls were necessary to the majority of organizations before the call was answered or the appropriate person was available, or the organization required a call back at a specific time to complete the interview. The list of sample groups appears in Appendix D. The groups contacted, or with whom contact was attempted, are categorized by Area and then by survey disposition (i.e. survey completed, refused, screened out, etc.). For groups that completed the survey, the person interviewed, their position, and telephone number is given.

5.3 RESULTS

The results of the study are displayed graphically in Figures 7 through 15. Figure 7 shows the actual number of interest groups and industry groups that completed the surveys in order to give the reader a more concrete meaning of various percentages that are reported in the results. At the bottom of Figures 8 through 15, the questions from the applicable survey used to generate the graph are listed in order to help explain

Figure 7

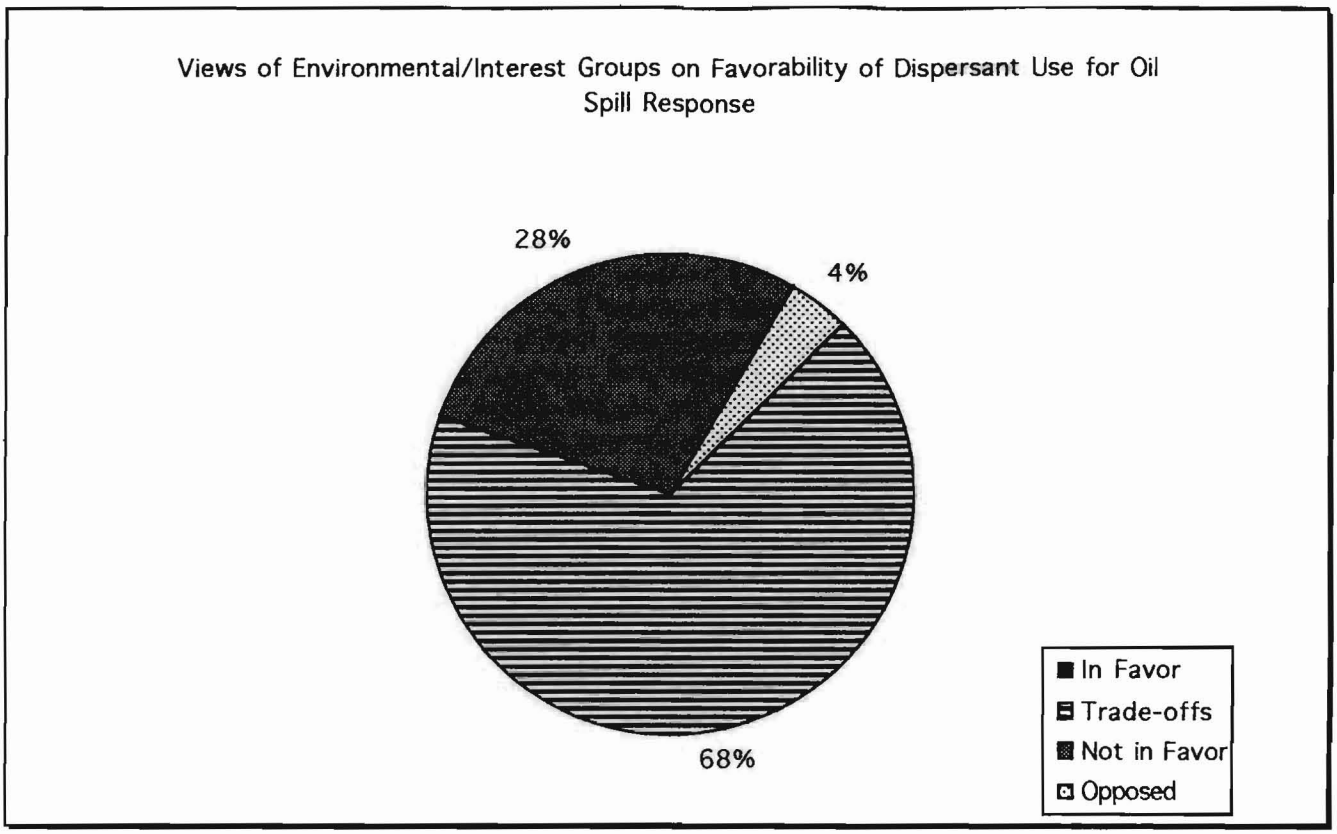
Number of Completed Surveys by Area/Group

Area/Group	Number of Surveys Complete
Maine/New Hampshire	6
Massachusetts	7
Rhode Island	5
Long Island Sound	4
New York/New Jersey	4
Industry	6

the manner in which the information was derived, as well as to enhance the understanding of the graph's meaning.

Figures 8 and 9 depict the views of interest groups and industry groups, respectively, with regard to dispersant use. This information is useful as it can be used to gauge the potential for conflict between these two sets of groups during a spill, and therefore the need to pre-plan for dispersant use. As expected, the data show a dichotomy between the two sets of groups on this issue. While the majority (68%) of the interest groups viewed dispersants as useful in certain situations and over a quarter of them (28%) were not in favor, nearly all of the industry groups (83%) were in favor of dispersant use with the remainder viewing them as useful. Perhaps unexpected, however, is the fact that the interest groups were not unequivocally against dispersant use. In fact, only a small four percent of those surveyed were opposed. This indicates that, although these sets of groups differ in their views, the majority are not on the opposite extremes of the spectrum as may have been thought. Two basic points are thus derived from these figures. First, interest groups and industry groups do differ in their views on dispersant use, thereby increasing the potential for conflict between these groups regarding dispersant use during oil spill response. Second, on a more positive note, the fact that these views are not diametrically opposed provides a degree of optimism in that these groups may be able to reach agreement on the use of dispersants if brought together ahead of spill time to plan such use.

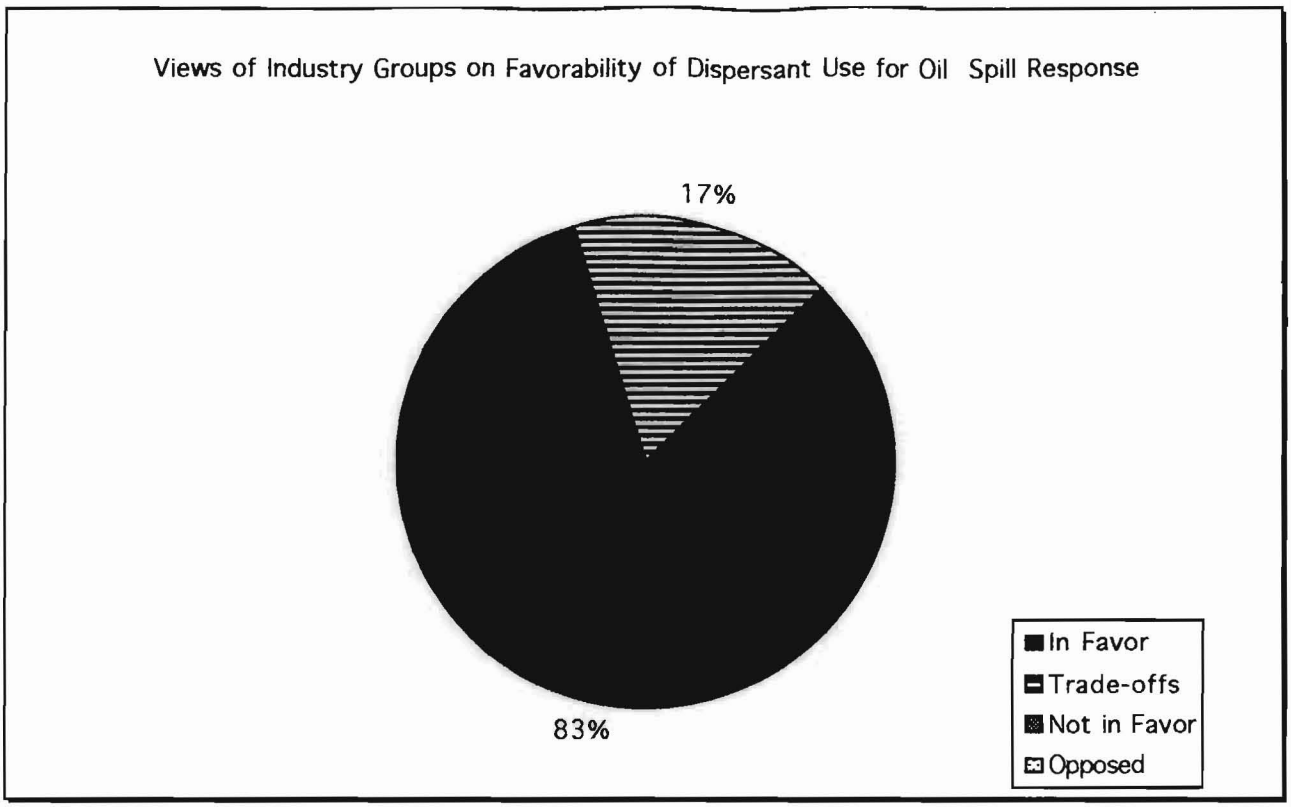
Figure 8



Question (Interest Group Survey):
4c. Please Choose the statement which most closely accords with your organization's feelings on dispersant use for offshore oil spills.

1. Dispersants are toxic to marine life and should never be used (Opposed).
2. Dispersants are toxic to marine life and should rarely be used (Not in favor).
3. Dispersant use involves trade-offs but can minimize the ecological damage of oil spills in certain situations (Trade-offs).
4. Dispersants are extremely useful and should be considered as a first response option for the majority of significant oil spills (In favor).

Figure 9



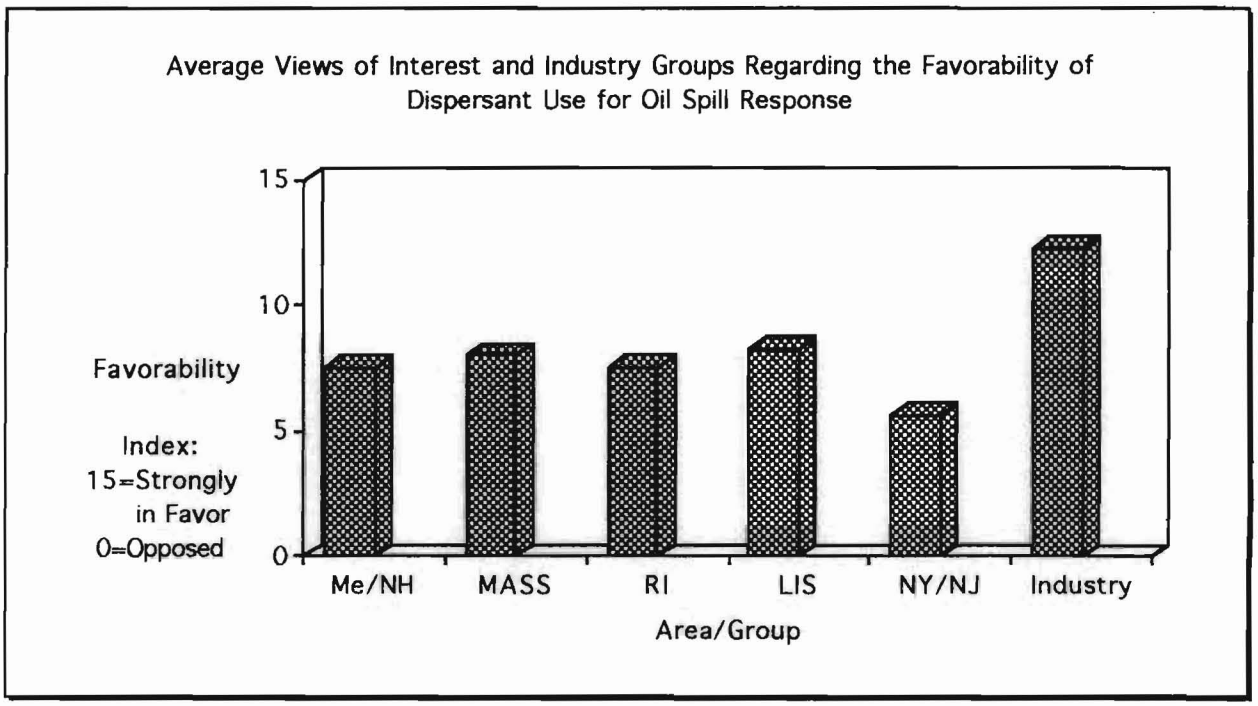
Question (Industry Group Survey):
2b. Please Choose the statement which most closely accords with your organization's feelings on dispersant use for offshore oil spills.

1. Dispersants are toxic to marine life and should never be used (Opposed).
2. Dispersants are toxic to marine life and should rarely be used (Not in favor).
3. Dispersant use involves trade-offs but can minimize the ecological damage of oil spills in certain situations (Trade-offs).
4. Dispersants are extremely useful and should be considered as a first response option for the majority of significant oil spills (In favor).

Figure 10 also depicts the views of both interest and industry groups with regard to dispersant use. In this figure, however, two questions instead of one from the surveys were used, and the responses were placed on a point scale from 0 to 15 (0 being Opposed and 15 being Strongly in favor of dispersant use). In addition, the data were compiled for the interest groups in each Area separately to allow for comparison between the Areas as well as between the interest groups and industry. In Maine/New Hampshire, Massachusetts, Rhode Island, and Long Island Sound, the average ratings for the interest groups fell directly in the middle of the scale, meaning basically that they are not opposed to dispersants but do feel that a careful/conservative approach should be taken with regard to their use. The New York/New Jersey Area differed in that the average was a couple of points lower, indicating a stronger view toward caution in using dispersants. The reason for this difference was not inherent in the data and therefore may only be speculated upon. As will be seen, the New York/New Jersey Area differed from the other Areas on some of the other issues investigated as well. Thus any speculation with regard to the reasons for these differences will be reserved for the next section, in which conclusions for each Area will be discussed. Again, in Figure 10 the industry rating was significantly higher than that of the interest groups, demonstrating the industry's propensity toward dispersant use compared to the other groups.

The average level of involvement of interest groups in oil spill response activities and issues, for both the present and

Figure 10



Questions (both surveys)

4c/2b. Please Choose the statement which most closely accords with your organization's feelings on dispersant use for offshore oil spills

1. Dispersants are toxic to marine life and should never be used (0 pts.).
2. Dispersants are toxic to marine life and should rarely be used (5 pts.).
3. Dispersant use involves trade-offs but can minimize the ecological damage of oil spills in certain situations (10 pts.).
4. Dispersants are extremely useful and should be considered as a first response option for the majority of significant oil spills (15 pts.).

4d/2c. My organization/company seeks to or would:

1. Encourage dispersant use (15 pts.).
2. Encourage careful consideration before dispersants are used (10 pts.).
3. Discourage any use of dispersants for oil spill response (0 pts.).

the future, by Area, is shown in Figure 11.[166] In all Areas except New York/New Jersey, the past involvement averaged between the medium and the low range, with Rhode Island showing medium involvement, Massachusetts showing low involvement, and Maine/New Hampshire and Long Island Sound falling in between. The past involvement of the New York/New Jersey groups fell between the level of medium and high involvement. Interestingly, the groups in all but one Area expected increased involvement in oil spill response issues in the future. In fact, the future involvement of groups in Maine/New Hampshire, Massachusetts, Rhode Island, and Long Island Sound is expected to be at the medium level. The future involvement of groups in the New York/New Jersey Area is expected to be nearer the high level. Significant information can be yielded from this figure in terms of the importance of including interest groups in spill response planning. These groups have been interested and involved in oil spill response issues, at least to some extent, in the past. In addition, their involvement is expected to increase in the future. This provides evidence in support of the notion discussed above that interest groups are demanding a larger role in oil spill response decision-making and that, if not somehow included in the process, they are not likely to sit back and remain quiet.

Figure 12 deals specifically with the involvement of interest groups in each Area in oil spill response planning, both

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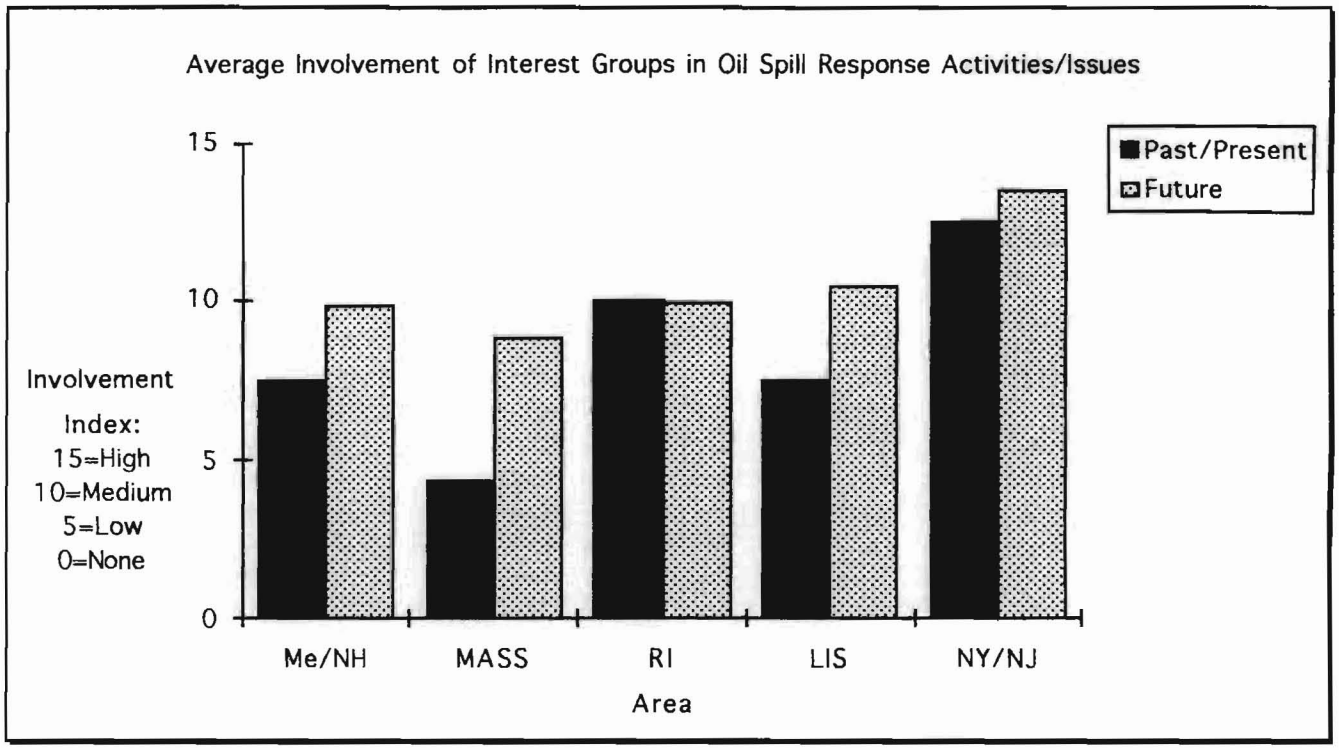
[166]In Figure 11, the level of past/present involvement was obtained by averaging the responses from question (2aa) among all the groups in each particular Area. The level of future involvement was obtained by averaging the responses from question (2bbb) among all the groups in each Area.

Figure 11



Questions (Interest Group Survey):

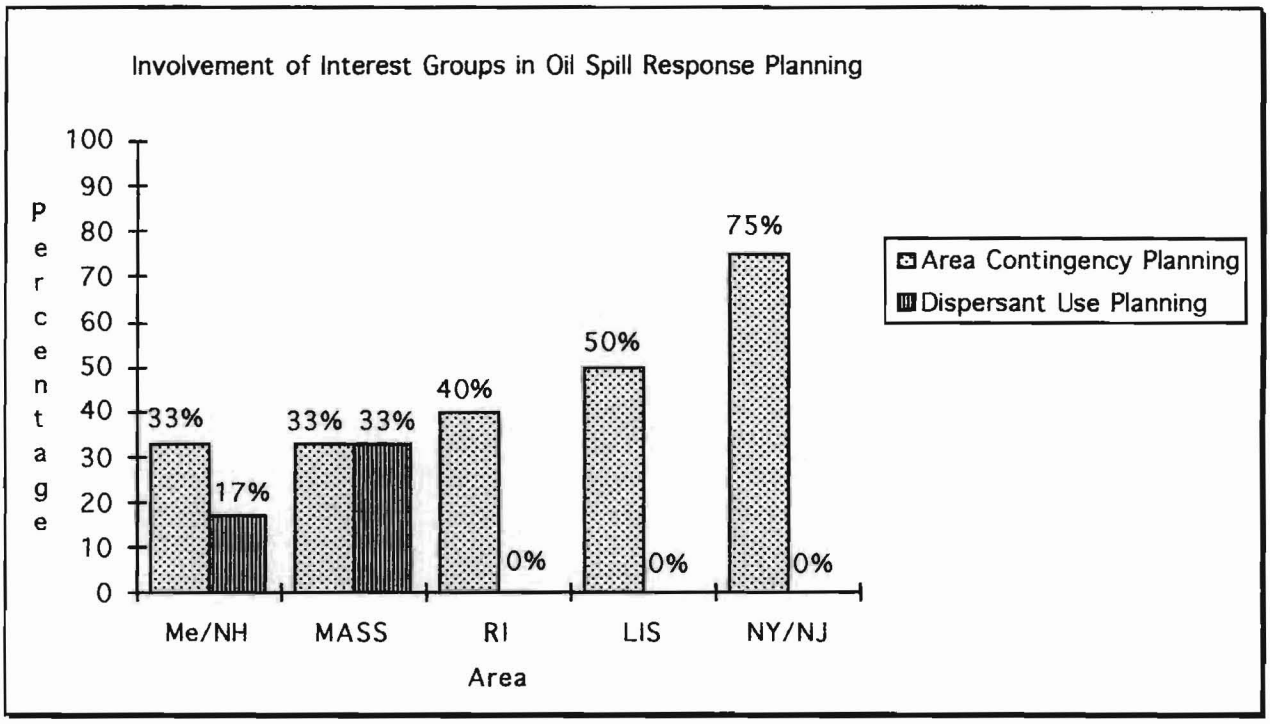
2aa. I would rate my organization's past involvement in oil spill response and associated issues as:

1. Very Active (15 pts.)
2. Somewhat Active (10 pts.)
3. Marginally Active (5 pts.)
4. Active Only Under Certain Circumstances (0 pts.)

2bbb. If tomorrow a large tanker had an accident off the coast of my state and began to spill a significant amount of oil into the coastal waters, my organization would:

1. Become actively involved in the response actions in order to best protect the marine environment (15 pts.)
2. Monitor the situation and become involved in the response if specific concerns of my organization were not being addressed (7 pts.)
3. Not be concerned nor become involved in the spill response (0 pts)

Figure 12



Questions (Interest Group Survey):

3a. Does your organization participate in the oil spill response planning activities of your local Area Committee?

1. Yes
2. No
3. Don't know

4f. Members of my organization have participated in the planning process to determine when and where dispersants should be used.

1. Yes
2. No
3. Don't know

general Area Contingency planning and dispersant use planning.[167] In terms of Area Contingency planning, a fairly low percentage of the groups surveyed participate (33% in Maine/New Hampshire, 33% in Massachusetts, 40% in Rhode Island, and 50% in Long Island Sound). Excepted is New York/New Jersey, in which 75% of the groups surveyed do participate in the Area Contingency planning. While the percentages of groups participating in Area Contingency Planning in most of the Areas is not enormous, at least some participation is evident. On the other hand, the percentage of groups participating in dispersant use planning is significantly less in all but one Area. In Rhode Island, Long Island Sound, and New York/New Jersey, none of the groups interviewed had been involved in dispersant use planning. In Maine/New Hampshire the percentage involved was a small 17%. This time Massachusetts was the anomaly, showing 33% participation among the groups interviewed. The difference between zero participation and some participation, albeit small, in dispersant planning among the Areas is in part understandable. Since both the New York/New Jersey and the Long Island Sound adopted the dispersant use plan developed by the Region II RRT, it is no surprise that local interest groups were not involved in the development of that plan. On the other hand, in areas where the dispersant plan was developed by a portion of the Area Committee (which remember is encouraged by directive to include outside interests in the

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[167]The percentage depicted in Figure 12 is the percentage of groups that responded affirmatively to question (3a) or (4f), with regard to their involvement in Area Contingency Planning or dispersant use planning, respectively.

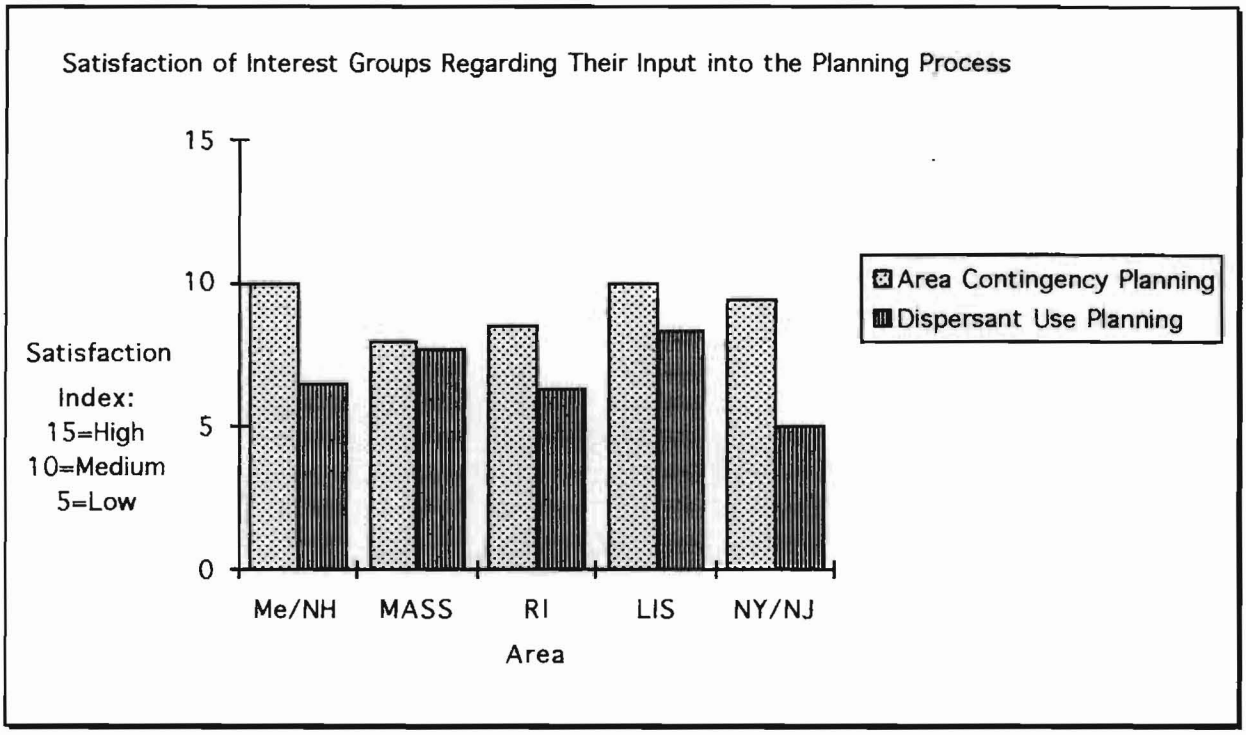
planning), such as Massachusetts and Maine/New Hampshire, at least some participation would be expected.

Nonetheless, the results in Figure 12 indicate a questionable future in terms of effective implementation of these dispersant use plans. According to the foundation that has been laid above, there is significant potential in the Areas of Rhode Island, Long Island Sound, and New York/New Jersey for interest groups to undermine the utility of the dispersant use plans, both over the short and long terms, because they have not participated in the development of the dispersant use plans. And while the potential for destructive interest group interference with regard to dispersant use in the Areas of Maine/New Hampshire and Massachusetts is somewhat less, it is still significant due to the minimal level of interest group participation in dispersant use planning in those Areas as well.

Besides the actual level of interest group involvement in dispersant use planning, two other factors which are likely to impact the successful implementation of the dispersant use plans were measured in the study. The first is the satisfaction of the interest groups regarding their input into the planning process. Logically, the less satisfied these groups feel in terms of their opportunity to participate in dispersant use planning decisions, the more likely they will feel the need to voice their concerns at the time of a spill or afterward, actions which could undermine the dispersant use plans.

Figure 13 charts the satisfaction of these interest groups in terms of their participation in both Area Contingency planning

Figure 13



Questions (Interest Group Survey):

3d. The concerns of my organization with regard to proper oil spill response actions to protect the marine environment have adequately been taken into account in the planning process.

Strongly Agree (15 pts.); Agree (10 pts.); Disagree (5 pts.); Strongly Disagree (0 pts.)

3f. My organization is satisfied with the opportunity it has to provide input into how oil spill response in the marine environment will be handled.

Strongly Agree (15 pts.); Agree (10 pts.); Disagree (5 pts.); Strongly Disagree (0 pts.)

4g. The concerns of my organization have been adequately taken into account in the current dispersant use planning process.

Strongly Agree (15 pts.); Agree (10 pts.); Disagree (5 pts.); Strongly Disagree (0 pts.)

4i. My organization is satisfied with the opportunity it has to provide input with regard to when and where dispersants should be used.

Strongly Agree (15 pts.); Agree (10 pts.); Disagree (5 pts.); Strongly Disagree (0 pts.)

and dispersant use planning.[168] In all Areas, the level of satisfaction with regard to the Area Contingency Planning ranged between the medium level and about midway between the low and medium level. By comparison, in all Areas the satisfaction with participation in dispersant use planning was less. In Maine/New Hampshire, Rhode Island, and New York/New Jersey, this level of satisfaction was basically on the low mark. In Massachusetts and Long Island Sound, this level fell about midway between the low and medium marks. Generally this figure shows that most interest groups are not particularly satisfied with the opportunity they have to participate in oil spill response planning, especially dispersant use planning. Again, this lack of satisfaction increases the likelihood that these interest groups may voice their opinions at spill time, serving to interfere with the effective implementation of AC or dispersant use plans.

The next factor examined was the confidence of interest groups that the government would adequately represent their interests at spill time, both for general oil spill response and for dispersant use. Confidence in government decisions is important because it can be assumed to impact the emergence of interest groups at spill time. For example, interest groups that have confidence in the government in terms of spill response will be less likely to interfere with the response management team decisions at the time of the spill. This may be the case even if

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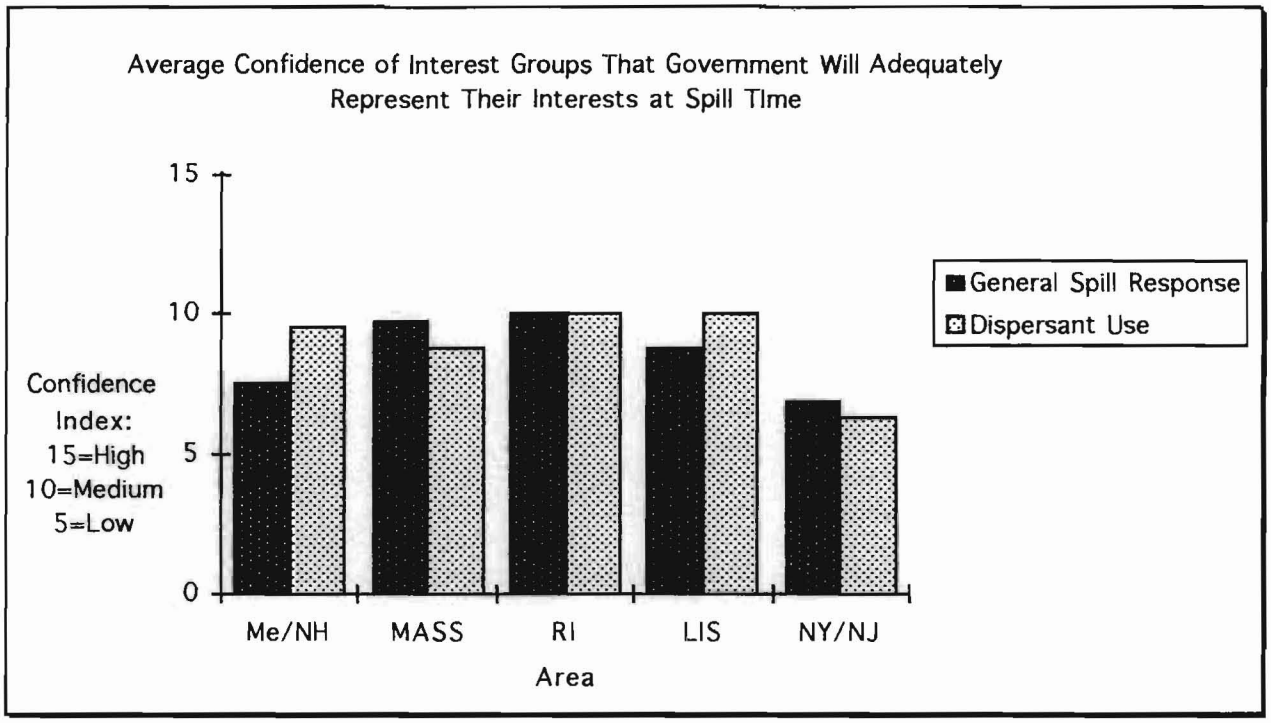
[168]In Figure 13, the responses to questions (3d) and (3f) were averaged, by group and then Area, to determine the average satisfaction level in each Area with regard to Area Contingency Planning. The responses to questions (4g) and (4i) were averaged, by group and then Area, to determine the average satisfaction level in each Area with regard to Dispersant Use Planning.

the group has not been involved in the spill response or dispersant use planning. Thus confidence provides another measure of potential emergence, and is depicted in Figure 14. In terms of general oil spill response, the level of confidence in all Areas ranged from the medium level to midway between the medium and low level, with the New York/New Jersey Area showing the lowest confidence. The results for dispersant use compared to those for general oil spill response are interesting. In Maine/New Hampshire, Rhode Island, and Long Island Sound, the confidence level of government decisions on dispersant use exceeds or is the same as that for general oil spill response. Also, in Massachusetts the confidence level is nearest the medium level, signifying fairly good confidence. The most probable reason for this trend of fairly good confidence with regard to government dispersant decisions is that most of the public, and public interest groups, have very limited knowledge about dispersants, how they work, or the issues surrounding dispersant use. In fact, many of the interest groups surveyed admitted that they knew very little about dispersants. Perhaps interest groups are willing to be more generous in terms of their confidence in governmental decisions surrounding a technical issue such as dispersants because they do not have the knowledge to make informed decisions themselves. While this is an unproven hypothesis, it is interesting to consider. Confidence due to ignorance can be unpredictable. For example, blind public confidence may be quickly eroded if the public or public interest groups are fed, or become aware of, information which portrays

Figure 14



Questions (Interest Group Survey):

3e. The concerns of my organization in terms of proper oil spill response actions to protect the marine environment will be adequately represented by state or other officials at the time of a spill.

Strongly Agree (15 pts.); Agree (10 pts.); Disagree (5 pts.);
Strongly Disagree (0 pts.)

4h. The concerns of my organization in terms of dispersant use and protecting the marine environment will be adequately represented by state or other officials at the time of a spill.

Strongly Agree (15 pts.); Agree (10 pts.); Disagree (5 pts.);
Strongly Disagree (0 pts.)

detrimental impacts of government decisions during actual oil spills. Thus, although the data show relatively good public confidence in terms of government decisions on dispersant use, this confidence should not be relied upon and should not be expected to maintain public support for spill response decisions over the long term. Returning to Figure 14, groups in the New York/New Jersey Area, in contrast with the other Areas, showed a rather low level of confidence in government decisions on dispersant use. This is most likely because the groups in the New York/New Jersey Area are more familiar with dispersants than the groups from the other Areas, therefore making them more critical of government dispersant decisions.

Finally, Figure 15 combines the two factors of satisfaction with input into the planning process and confidence in the government decisions. The graph depicts the percentage of groups in each Area that were both dissatisfied with their input into the planning processes and lacked confidence in government spill response decisions.[169] If these two factors are accepted as indicators of potential interest group emergence and consequent undermining of dispersant use plans as described above, those

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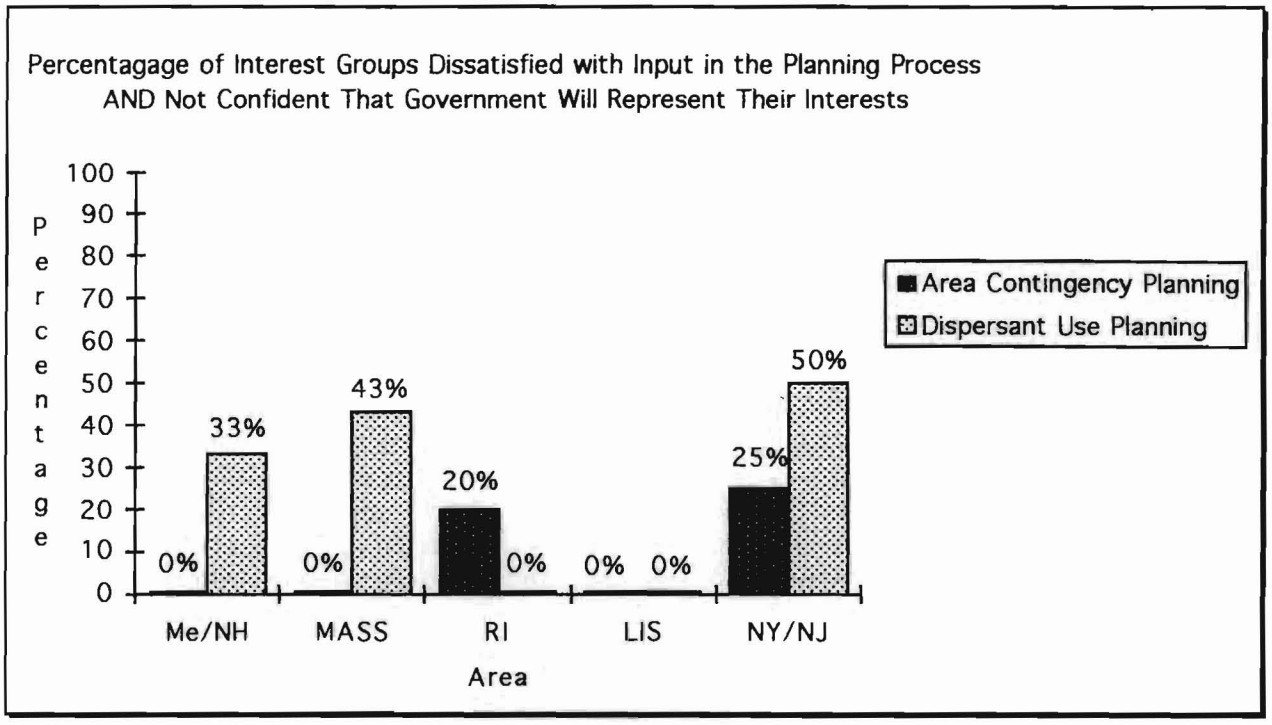
[169]In Figure 15, depicted are percentages of groups that were dissatisfied with their input into the Area Contingency planning process, as indicated by responses of "disagree" or "strongly disagree" to questions (3d) and (3f), AND not confident that the government would represent their interests in terms of Area Contingency Planning, as indicated by responses of "disagree" or "strongly disagree" to question (3e). Likewise, the percentages depicted for Dispersant Use Planning reflect those groups that were dissatisfied with their input into the dispersant planning process, as indicated by responses of "disagree" or "strongly disagree" to questions (4g) and (4i), AND were not confident that the government would represent their interests in terms of dispersant use planning, as indicated by responses of "disagree" or "strongly disagree" to question (4h).

Figure 15



Questions (Interest Group Survey):

3d. The concerns of my organization with regard to proper oil spill response actions to protect the marine environment have adequately been taken into account in the planning process.

Strongly Agree; Agree; Disagree; Strongly Disagree

3e. The concerns of my organization in terms of proper oil spill response actions to protect the marine environment will be adequately represented by state or other officials at the time of a spill.

Strongly Agree; Agree; Disagree; Strongly Disagree

3f. My organization is satisfied with the opportunity it has to provide input into how oil spill response in the marine environment will be handled.

Strongly Agree; Agree; Disagree; Strongly Disagree

4g. The concerns of my organization have been adequately taken into account in the current dispersant use planning process.

Strongly Agree; Agree; Disagree; Strongly Disagree

4h. The concerns of my organization in terms of dispersant use and protecting the marine environment will be adequately represented by state or other officials at the time of a spill.

Strongly Agree; Agree; Disagree; Strongly Disagree

4i. My organization is satisfied with the opportunity it has to provide input with regard to when and where dispersants should be used.

Strongly Agree; Agree; Disagree; Strongly Disagree

groups that show both dissatisfaction and low confidence have the greatest potential for this interference. The results here are extremely variable. No groups in Maine/New Hampshire, Massachusetts, or Long Island Sound demonstrated both of these characteristics with regard to Area Contingency Planning. For Rhode Island and New York/New Jersey, 20% and 25% of the groups respectively showed both of the characteristics. In terms of dispersant use, two Areas (RI and LIS) contained no groups which exhibited both dissatisfaction and lack of confidence together. The other Areas, however, had significant percentages of groups that exhibited both characteristics, thereby indicating an increased potential for the Areas of Maine/New Hampshire, Massachusetts, and New York/New Jersey to experience problems with the interference of interest groups in the implementation of their dispersant plans.

5.4 SURVEY CONCLUSIONS

Based on the foregoing, some basic conclusions can be made regarding the probability for the future success of the current dispersant use plans in each Northeast Area. Again these conclusions are not intended to be absolute. They are provided with the caveat that they are based on a limited study of only a small number of interest groups from each Area. In addition they are based on the concepts established throughout the paper, and supported both by logic and people in the field of oil spill response (although not necessarily proven), that participation in planning, as well as satisfaction with regard to the opportunity

to participate and confidence in government decisions, will impact the potential of interest groups to emerge and undermine the successful implementation of dispersant use plans.

The conclusions for each Area will be discussed in turn. In the Maine/New Hampshire Area the dispersant use plan is not likely to be successful. While the involvement of interest groups in oil spill response issues can be expected to be significant in the future (Figure 11), the involvement of these groups in dispersant use planning was low (Figure 12). In addition, one-third of the interest groups in this Area were both dissatisfied with their opportunity to participate in dispersant use planning and were not confident that the government would adequately represent their interests in its decisions. The combination of these factors leads to the conclusion that interest groups are likely to emerge to undermine the successful implementation of the dispersant use plan in this Area.

In the Massachusetts Area, past involvement of interest groups in oil spill response issues has been relatively low. However, this involvement is expected to increase to a significant level in the future (Figure 11). In terms of the involvement of Massachusetts interest groups in dispersant use planning, a fairly substantial number (33%) have been involved (Figure 12). This seems to indicate that the Massachusetts Area Committee has done a good job of including these groups in the planning. In fact, this Area had the highest level of interest group involvement in dispersant use planning. Nonetheless, forty-three percent of the interest groups surveyed were both

dissatisfied with their involvement and lacked confidence in government decisions on dispersants (Figure 15), indicating that the potential for emergence is still significant among these groups. Thus the dispersant use plan in the Massachusetts Area can be expected to encounter problems during implementation.

The probability for the success of the Rhode Island dispersant use plan is good based on the data collected. The interest groups in the Rhode Island Area have been involved in oil spill response issues in the past and are expected to continue this level of involvement in the future (Figure 11). And while none of these groups have participated in the dispersant use planning in this Area (Figure 12), they are not likely to emerge to undermine the plan. This is because all of them are either satisfied with their involvement in the dispersant planning or are confident in the government's dispersant use decisions (Figure 15). In other words, even though these groups have not been involved in the dispersant use planning, and demonstrate low average satisfaction with regard to this involvement (Figure 13), they are generally confident that government agencies will adequately represent their interests at spill time. Thus, on the whole, the interest groups in Rhode Island are not likely to emerge and the Rhode Island dispersant use plan has a fairly good chance for successful implementation.

The Long Island Sound Area results basically mirror those seen for the Rhode Island Area. The involvement of the Long Island Sound interest groups has been significant and is expected to increase in the future (Figure 11). Similar to the Rhode

Island groups, even though they have not participated in the dispersant use planning (Figure 12), they are reasonably confident in the government with regard to dispersant use decisions (Figure 14). Again, since none of the groups are both dissatisfied with their input into dispersant plans and not confident in the government dispersant decisions (Figure 15), emergence is unlikely and implementation of the dispersant use plan should operate as intended.

Lastly, the likelihood of success for the dispersant use plan in the New York/New Jersey Area is low based on the study data. The past and expected future involvement of interest groups in this Area is extremely high (Figure 11). In this case, none of interest groups participated in the dispersant use planning (Figure 12) because the planning was conducted at RRT proceedings, which normally do not include local interest groups. Also, they showed average low satisfaction regarding this participation and generally low confidence in the ability of the government to represent their interests in terms of dispersant use during spills (Figures 13 & 14). In fact, fifty percent of the groups surveyed were both dissatisfied with their input into dispersant plans and lacked confidence in government dispersant decisions (Figure 15). This indicates a significant potential for interest group emergence and interference with dispersant plan implementation.

Out of all the Areas surveyed, the New York/New Jersey Area demonstrates the lowest likelihood of successful implementation for its dispersant use plan. Also, as alluded to above, the

results for this Area differed greatly in many respects from those of the other Areas. While only speculation, these differences may be explained by a few general observations. First, the New York Area is known for its politically active, vocal, and progressive public. They know how to make their views known and how to "get their hands in the pie." Thus the New York/New Jersey interest groups are extremely active in oil spill response issues, and environmental issues in general, much more so than the generally smaller and less sophisticated groups in the other Northeast Areas. These facts help to explain the results in Figure 11, that the present and future involvement of interest groups in oil spill response issues in the New York/New Jersey Area is extremely high compared to the other Areas. They also help to explain the very high percentage (75%) of groups involved in the Area Contingency Planning in this Area compared to the other Areas (Figure 12).

Other differences in the New York/New Jersey Area are most likely due to the fact that dispersant use has been discussed in this Area for many years while the other Areas have worked on the issue only since the passage of OPA '90. For example, as early as 1983, work was being conducted in the New York area on guidelines for considering and authorizing the use of chemical dispersants.[170] Part of this work included a dispersant workshop

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[170]LTJG Robert F. Corbin and Gary Ott, "Federal Region II Regional Contingency Planning for a Dispersant Decision Process, " in Proceedings of the 1985 Oil Spill Conference (Washington, D. C.: American Petroleum Institute, 1985), 417. This planning was initiated by the Third Coast Guard District Marine Environmental Response Branch. COTP New York was at that time part of the Third Coast Guard District, which no longer exists.

on Governor's Island, New York, in 1983, which was attended by over one hundred representatives from various agencies and groups with interest in oil spill response.[171] This is important because these efforts served to educate much of the oil spill response community, including environmental interest groups, on the issues of dispersant use. Thus, at this point in time, many of these groups are knowledgeable about dispersants, which helps to explain their desire to become more involved in dispersant use planning as well as their lack of confidence in government decisions on dispersants (Figures 13 and 14). This is logical because if the groups understand the issues surrounding dispersants they are more likely: (1) to have distinct opinions on dispersant use and, (2) to realize if and when the government's views do not necessarily correspond with their own. On the other hand, groups less knowledgeable on dispersants, such as those from the other Areas, may be more willing to let the government officials take care of the planning because they do not feel equipped to make sound decisions (thus the average satisfaction w/regard to input scores in Figure 13). Also, as discussed above, they may show higher confidence in government dispersant decisions because they figure that the government knows best with regard to such an issue (as shown by the good confidence levels in Figure 14). These suppositions are actually supported from information received during the surveys. For instance, during the interviews the majority of groups from the Maine/New Hampshire, Massachusetts, Rhode Island, and Long Island

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[171]Ibid., 418.

Sound Areas admitted that they knew very little about dispersants. By comparison, the majority of groups surveyed in the New York/New Jersey Area claimed to be knowledgeable about dispersants and were generally conversant with regard to dispersant issues.

One last conclusion deals with the difference between general Area Contingency (AC) planning and dispersant use planning. The two types of planning were depicted separately in Figures 12 - 15 in order to illustrate vast differences in terms of the results in many cases. Generally there was more interest group involvement in AC planning compared with dispersant planning, and generally greater satisfaction of interest groups in terms of the opportunity to participate in AC planning compared with dispersant planning. This is significant because it shows that the ideal of incorporating non-governmental interest groups into Area Contingency planning has been generally accepted and is being practiced. However, this participation has not for the most part mapped over to dispersant use planning, even though the dispersant planning is actually part of Area Contingency planning. Proposed reasons for this problem and recommendations for its resolution will be discussed in the next section.

5.5 RECOMMENDATIONS

Before considering recommendations to improve the dispersant planning process and to increase the potential for success of dispersant use plans, it is necessary to understand the

underlying reasons for the present problems. Probable causes will be discussed on the basis of information obtained from the study questionnaires, interviews with Coast Guard Planning Officers in each of the study Areas, and general concepts regarding public participation in policy- making. The reader is cautioned that the study did not attempt to establish definitive cause and effect relationships between the various factors that will be discussed and the lack of interest group participation in dispersant use planning. Rather the purpose of the information is simply to outline some potential causes of poor participation, those which should be considered by anyone attempting to deal with public participation processes.

Problems with interest group participation in planning stem from the actions and perceptions of both government agencies and interest groups. The obstacles to effective participation generated or perceived by interest groups will be discussed first.

One basic problem discovered in the study is that a large portion (81%) of the interest groups surveyed stated that they had not been invited to participate in the dispersant use planning. This is interesting because all of the Coast Guard Planning Officers interviewed stated that they had at some point in time invited environmental interest groups to participate.[172]

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[172]Phone conversation with LT Echols, Response Officer, Coast Guard Marine Safety Office Portland, ME, 17 February 1995; Phone conversation with LT Victoria Huyck, Marine Environmental Response Officer, Coast Guard Captain of the Port New York, NY, 16 February 1995; Phone conversation with LCDR Paul Jewell, Response Officer, Coast Guard Marine Safety Office Providence, RI, 16 February 1995; Phone conversation with LT William Moeller, Response Officer, Coast Guard Captain of the Port Long Island Sound,

In fact, the officer from COTP Portland was very angry about the whole situation, stating that his office had made several attempts to enlist the involvement of these groups but they had not been interested. His office has thus resorted to sending the interest groups copies of proposed plans as they are developed, hoping to get their comments or at least make them aware of what is going on in order to be able to squash them should they emerge with disputes at spill time.[173] This discrepancy between government and interest groups regarding invitations to participate can be explained relatively easily. First, the groups invited may not be the same as those interviewed. Also, personnel from the interest groups interviewed may not have been aware of such an invitation, or may have forgotten about it, especially if the group had only received one invitation at one point in time. In any case, the dilemma here is that the government agencies perceive (1) that they have done their job (by inviting the interest groups to participate, usually by sending a letter), and (2) that the interest groups simply are not interested in taking part in reaching oil spill response decisions before the spill occurs. On the other hand, the interest groups perceive that they have not been included in the process at all. Obviously some work needs to be done to repair this disconnect. As the director of one conservation group in Rhode Island stated, many times environmental groups must be

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NY, 17 February 1995; and Phone conversation with LTJG Robert Seale, Planning Department, Coast Guard Marine Safety Office Boston, MA, 16 February 1995.

[173]Phonecon LT Echols, 17 February 1995.

enticed to commit their resources to a particular pursuit. Usually a letter in the mail is not enough; it may take a personal phone call from the government agency to the Director explaining why this group's participation is important and requesting its contribution to the process.[174]

Unfortunately, simply being invited may not result in increased participation due to other constraints or obstacles for these interest groups. A significant fifty-eight percent of the groups surveyed, when asked if they would participate if given the opportunity, replied negatively or replied positively with various caveats (i.e. they would participate if they had the time, or more people, etc.). The reasons for these replies varied. Most groups suffer from severe resource (money, people, time) constraints and therefore many simply stated that they did not have the resources to participate in dispersant use planning. The other aspect of this constraint is priority. Many groups stated that oil spill response is not a priority for their organization, even though many expect to become involved in the issues at the time of a spill. Another obstacle is the perception of these interest groups in terms of their ability to influence the outcome of the planning process. A few groups claimed that they would participate only if they could be assured that their views would be seriously taken into account. The fact that interest groups are non-voting members of the Area Committee (and therefore the dispersant planning subcommittees as well)

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[174]Phone conversation with Mr. Curt Spaulding, Director, Save the Bay, Providence, RI, 01 June 1995.

seems to breed discontent, mistrust, and alienation among some of these interest groups. Their reluctance to participate in dispersant use planning is thus understandable. These groups would be foolish to waste scarce resources on activities that are not likely to have an impact. The last factor dealing with interest groups is their lack of knowledge on dispersants and dispersant issues. Many of the groups admitted during the survey that they knew very little or nothing about dispersants. Also, based on two survey questions, fifty-eight of the people surveyed were found to lack general knowledge about how dispersants work and the issues surrounding dispersant use. This is a problem because, as was pointed out by some groups, a group cannot participate effectively in dispersant use planning if it does not have a sufficient knowledge base. Understanding the issues is important so that the group can establish a position and then attempt to influence decisions to coincide with its position. Since many groups at this point in time are not educated on dispersants, they have no incentive and may be reluctant to participate in dispersant use planning.

Aside from the interest groups, lack of participation in dispersant use planning may be precipitated by obstacles created by government agencies. First, as was discussed above, Coast Guard Planning Officers often have a whole host of responsibilities and may find it too difficult to spend the time necessary to solicit appropriate representation from all interested parties for dispersant use planning. Another problem is that any type of public participation in policy-making is

inherently inefficient and therefore contrary to the progress-seeking goals of government bureaucracies. As stated by one author on public participation in policy-making, "...participation is seen as the antithesis to the administrative values of efficiency, economy, and control."[175] Government agencies may be reluctant to seek widespread participation because it usually increases the time involved in producing outcomes (plans), may result in deadlock among players or outcomes that the agency does not favor, or may cultivate criticism of the agency's planning, mission, and professional judgment.[176] While it does not appear that government agencies have been actively trying to avoid interest group participation in dispersant use planning for these reasons, these factors could conceivably create a subconscious reluctance on the part of agency planners to aggressively pursue interest group participation. Lastly, the perception on the part of bureaucracy that citizens and interest groups lack information and professional expertise is yet another obstacle.[177] Because dispersant use is a complex and fairly technical issue, government agencies may feel that they can make the best decisions for society based on their knowledge, and that poor decisions may result from the participation of uninformed public entities in dispersant use decision processes. Again, such perceptions could easily preclude effective interest group participation.

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[175]Checkoway and Van Til, 33.
[176]Rosenbaum, Walter, 90.
[177]Checkoway and Van Til, 33.

Thus there are many obstacles that stand in the path of effective interest group participation in dispersant use planning both in the Northeast and elsewhere in the United States. As was demonstrated in the study, the result in the Northeast has been widespread lack of interest group participation in dispersant use planning, and the subsequent doomed fate of the majority of the dispersant use plans currently in existence. There are definitely no easy answers to this dilemma, especially since the problems stem from both government agencies and interest groups. However, two general approaches to deal with dispersant use planning in the future seem possible.

The first is to continue on the path that has been followed thus far in the Northeast, in other words to half-heartedly attempt to involve all interested parties in the dispersant planning. Once such an attempt has been made, government agencies can claim that they did their part and cannot be "blamed" if interest groups or others do not agree with the contents of the plan. This is in fact happening. Several FOSCs, while at the OSC Crisis Management Course in Virginia, stated that they would simply ignore interest group opposition or protests against actions approved in contingency plans because these groups "had their chance (to provide input)" and failed to take it.[178] Although this approach seems fair, it is not practicable within our present political system. As discussed above, any government leader is both obligated and placed under

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[178]Phone conversation with LCDR Steve O'Malley, Instructor at OSC Crisis Management Course, Coast Guard Reserve Training Center, Yorktown, Virginia, 31 May 1995.

tremendous political pressure to listen to such groups in a crisis situation, no matter what the previous behavior of the groups. Thus, while some FOSCs may want to ignore these groups, the reality is that in most cases they will not be able to do so, not without jeopardizing their reputations and their careers. The other reality is that during very significant spills, the FOSC's normal decision-making authority will most likely be supplanted by that of a very high ranking Coast Guard officer (such as an Admiral), whose concerns will be more intensely political than those of the FOSC.[179] Thus this approach does not address the underlying dilemma of interest group concern with dispersant use, and their potential emergence during spills. It also does not adequately consider the political atmosphere in which oil spill response in the United States operates, a factor which allows interest groups to influence (directly or indirectly) spill response decisions whether or not they have chosen to be involved in planning processes. Such an approach will obviously be ineffective in terms of assuring the successful implementation of current dispersant use plans.

The other approach, simply stated, is to make interest group participation in the process work. This is difficult because it involves altering the present behavior of both government agencies and interest groups. While government agencies can alter their own behavior to improve the situation, altering that of interest groups is significantly more

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[179]Walker, Harrald, Ducey, and Lacey, 37-8.

challenging. However, this appears to be the most plausible way to develop usable dispersant use plans.

This approach will require tremendous effort, initially on the part of the Coast Guard Planning Officers, and later on the part of all involved. The first step in this process is to identify resources that may practicably be used to carry out the necessary tasks of organizing meetings and enlisting the participation of appropriate interest groups. Since Coast Guard Planning Officers are in charge of ensuring the Area Contingency Plans, and dispersant use plans, are developed, the burden of coordinating and activating interest group participation in dispersant use planning most properly falls on their shoulders. The problem with this, as noted above, is that some of these officers are overtasked with various duties. This can be easily overcome, however, especially at this point in time.

Presently the Area Contingency Planning process, which began formally in 1992, is well established in most Areas and most sections of the ACPs are fairly well complete, as they have been worked on steadily for the past three years. Thus, even though each ACP must be revised annually until 1997 (and then every 5 years),[180] these planning officers, some of which have staffs as well, now have the time to concentrate specifically if not solely on dispersant use planning. This seems like a logical course of action for officers filling the planning billets established as a result of OPA 90, now that the original ACP planning burden is largely completed. The decision to devote extensive resources to

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[180]U. S. Coast Guard, Commandant Notice 16471, Para. (o).

dispersant use planning, however, must be made individually at each command. Each commanding officer would have to be committed to the process and would have to ensure that their planners were able to devote the time and energy necessary for such an endeavor by not allowing them to be assigned other primary duties. In addition, the command leadership must foster positive working relationships with local interest groups by foregoing the statutory non-voting status of these groups in the proceedings. Trust and cooperation can only be built by showing these groups that their voice does count and will not be ignored. Without such an understanding, interest groups are likely to remain distant and uninterested in dispersant use planning.

The other problem with expecting Coast Guard planning officers to develop dispersant use plans based on the participation of all interested parties is that they are not trained in the complex art of consensus building among groups with disparate viewpoints. To overcome this problem, each Area planning officer could be trained in this area of expertise. While this training would not need to be extensive, and therefore would not be overly costly, the fact that new officers fill the planning billets every three or four years (and in some cases even more frequently) makes this a burdensome requirement. A better solution would be to train a few public participation/group dynamics specialists for positions at the Headquarters level. These people could then act as facilitators, attending the dispersant planning meetings in various Areas in order to help direct the discussion and channel participants'

energy into positive outcomes. Another option would be to hire private consultants to perform the facilitator function. The primary responsibility for planning and organizing the meetings, as well as leading the discussion and compiling the results of the meetings into actual plans, would remain with the Area Planning Officers. This is important because the local government agencies and the local interest groups need to establish a good rapport in order to increase the potential for cooperation, mutual understanding, and efficiency during an actual oil spill emergency. These types of effective working relationships among local entities are tremendously beneficial in oil spill response situations and would not evolve if, for instance, a "dispersant use planning team" from Headquarters were to be tasked with the entire dispersant use planning process in each Area.

In order to begin the process in the Northeast Areas, the following specific sequence of events is recommended. These actions are recommended for all five of the Northeast planning Areas, despite the differing results from the study. This is because each Area would benefit by increasing its current level of interest group participation in dispersant use planning. For example, even though the study found that the Rhode Island and Long Island Sound Areas are less likely to encounter problems with the implementation of their dispersant use plans, these Areas still showed nominal interest group participation. Increasing interest group participation in all of the Areas will

decrease further the chance that interest groups may emerge and undermine the dispersant use plans at spill time.

First, each Area Committee/Planning Officer must identify appropriate interest groups in each Area. This will require investigation into what groups are in existence, as well as into the potential involvement of various groups in oil spill response issues. In order for future planning to be successful, all such groups that might potentially emerge with concerns at spill time must be identified. Such an effort has not yet occurred. The current lists of environmental groups and other interest group organizations (i.e. fishermen's associations) in the Area Contingency Plans are severely inaccurate and incomplete. One Northeast planning officer admitted that the lists in his ACP were thrown together rather haphazardly in order to meet planning deadlines, and the other ACP lists seem to have been prepared in a similar manner.

The next and vitally important step is *education*. Interest groups must be made aware of how dispersants work, the issues surrounding dispersants, and why it is important that dispersants be available for use in the United States. This will allow interest groups to develop informed views on dispersant use and will enable them to participate in future planning in an effective manner. Both of these factors should increase the willingness of interest groups to participate in future dispersant planning. Organizing an education workshop will involve a large time commitment. Each interest group should be contacted by telephone and convinced that they have an interest

in attending. In addition, the Planning officer/organizer should stress that each group's involvement is important in order to ensure the future integrity of the nation's water resources. While this seems like a monumental task, such education efforts are not unheard of. The workshop held on Governor's Island in 1983 (see above) was such an effort. Also, more recently, a similar workshop was held in Massachusetts, although the audience was limited to oil spill agency officials and scientists/academia, and the purpose was primarily to discuss the impacts of dispersants on marine species protected under the Marine Mammal Protection Act and the Endangered Species Act.[181] Thus, while some education and dispersant discussions are underway, dispersant education needs to be pursued more aggressively in each Area and to encompass all varieties of interest groups.

Once the education phase has been accomplished, similar workshops should be held to develop new, or revise existing, dispersant plans. These workshops can be scheduled for any time, as Area Committees may adopt revisions to ACPs whenever the Committee deems it appropriate. Again, all interested groups must be enticed to participate through personal phone calls or other legal coercion methods. In addition, specially trained facilitators from Headquarters should be present at the workshops to help channel the discussion and work through disagreements or

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[181] Mantzaris, Christopher, Chief, Habitat and Protected Resources Division of NOAA, to Captain P. A. Turlo, Commanding Officer, Coast Guard Marine Safety Office Providence, RI, of April 4, 1995. Letter invitation to attend the Protected Marine Species and Oil Spill Countermeasure Innovations Workshop.

stalemate. The outcome of such workshops will be a set of criteria delineating when and where dispersants should be used or not used, agreed upon by all parties, that will then be compiled into a formal contingency plan to be approved by the concurrence network. A plan created through this process will provide responders with confidence that the plan can be implemented at spill time without hesitation, and without fear that actions taken in accordance with the plan might be questioned or criticized by groups outside the spill management team. Such confidence is necessary if dispersants are ever to be used effectively and more frequently in the United States.

Chapter 6 Summary and Conclusions

As has been seen, dispersants have not been highly regarded nor utilized in the United States as an oil spill response option. With ongoing research and development, however, previous concerns regarding dispersant toxicity and effectiveness have been somewhat alleviated, and today a large portion of the response community recognizes that dispersants can indeed be useful. While not advisable for use under certain conditions and in certain habitats, dispersants can offer significant advantages over traditional cleanup methods in appropriate situations. These advantages can include the minimization of damages, lower relative costs, ease of application and the ability to reach a large spill area relatively rapidly, and waste reduction.

Dispersant use policy has evolved in keeping with this growing body of knowledge concerning dispersants and the shift in attitude regarding their utility. Influenced by toxicity fears and the poor reputation of dispersants, past dispersant use policies stressed caution, touted mechanical cleanup as the favored response method, and established an unworkable decision hierarchy that basically precluded effective dispersant use from 1970 to 1990. Current policy, however, considers the prerequisites of effective dispersant use and mandates that these issues be resolved before a spill occurs to ensure the existence of a true dispersant use capability. Most notably, OPA 90 requires that Area Committees and RRTs consider when and where dispersant use would be appropriate, and that they develop

dispersant pre-authorization plans. Through this planning process and pre-agreement among authorizing agencies, it is hoped that quick dispersant use decisions can be made, thereby increasing the chances for successful responses in situations where dispersant use is warranted.

Unfortunately, the development of contingency plans is not a guarantee that they will be implemented as expected. In the case of dispersant pre-authorization plans, the views of interest groups must be considered. Interest groups, especially environmental organizations, are stakeholders in oil spill response decisions. In addition, as a result of the general increasing desire of the American public to participate in governmental decisions as well as the growth of environmental concern in the United States, interest groups have, and can be expected to, become involved in oil spill issues and decisions. Also recognized is that these interest groups are a powerful political force and while they may have no direct role in oil spill response decisions, they certainly can influence these decisions indirectly. Thus the conclusion is that the views of these interest groups must be incorporated into the dispersant planning process in order to prevent their interference at the time of the spill or afterward which would undermine the successful implementation of these plans.

The survey described in this paper was designed to examine the participation of interest groups in the dispersant pre-authorization planning in the Northeast United States. The survey results conclude that the requisite interest group

involvement in dispersant use planning in the Northeast has not been met. While government agencies have made attempts to include these groups in the planning processes, they have not been effective in securing the groups' involvement nor in establishing a meaningful dialogue with these groups. As seen in Figure 12, the percentage of interviewed groups which participate in dispersant use planning is very small or zero for all of the Areas. Also, Figure 15 shows that in the Areas of Maine/New Hampshire, Massachusetts, and New York/New Jersey, significant percentages of the groups interviewed are both dissatisfied with their input into the dispersant planning process, and not confident that the government will represent their interests during dispersant use planning. Thus, in the Areas of Maine/New Hampshire, Massachusetts, and New York/New Jersey, interest groups are likely to emerge at spill time with concerns that have not been considered in the dispersant use planning process, and these plans are not likely to be successfully implemented at spill time. The dispersant pre-authorization plans developed in the Rhode Island and Long Island Sound Areas have a better chance of success, however, their effective implementation is still questionable due to the low level of interest group participation in the dispersant use planning in these Areas.

Since the blame for poor interest group participation lies both with government agencies and the interest groups themselves, both sides must contribute to a more reliable planning process. This paper concludes that the best route at this point is for the government to increase the awareness and knowledge of interest

groups with regard to dispersants, to work harder at enticing the attention of these groups and obtaining their participation in planning meetings, and to invest resources in facilitators who can help produce positive outputs from such meetings and ensure that no group feels as if its views have been ignored in the process.

Obviously dispersant use planning, together with appropriate interest group participation, will be a long and slow process that will require dedication, perseverance, and commitment by all interests. The necessary effort will be well worth it, however. Dispersants are a great resource which can enhance the mitigation of environmental damage from oil spills, and successful dispersant use planning can improve the potential effectiveness and efficiency of oil spill response in the United States. While the ability to use dispersants is important, it is more important to discover what response tools can practicably be put to use in each Area of the country. The actual outcome is not as important as the planning process. Far better it will be to discover that dispersant use in a particular Area will never be accepted, and to adopt that as the plan, rather than waste time and money planning for dispersant use and stockpiling resources just to encounter opposition/obstacles at spill time. Realizing up front that dispersant use will never be widely accepted in an Area is beneficial in that resources can then be used to concentrate on preparing for alternate response activities (such as mechanical cleanup).

Dispersant use planning itself can only be successful if all interested parties take part. While OPA '90 and the current NCP require the development of dispersant use plans, plans established in a hurried manner by small groups of specific interests are not likely to be successfully implemented in the heat of an oil spill crisis. Rather, these types of plans, such as those developed thus far in the Northeast, are more likely to lead to confusion at spill time because the responders will find that the plan cannot be implemented as expected. Also, they will lead to frustration on the part of planners, responders, and industry, all who have dedicated numerous hours and many dollars toward planning and preparing for dispersant use. Conversely, carrying out the planning process as described above will create understanding between various interests, as well as predictability with regard to how these interests are likely to react to certain response actions. If dispersant plans are written to be acceptable to all, there should be little or no discussion at spill time, allowing for quick decisions and efficient response.

Because of the promising nature of dispersants, the United States is not likely to ban the use of these substances, and they will continue to loom elusively over the heads of all oil spill responders. Therefore the current challenge is to bring dispersants down from their precarious position to one within the practicable oil spill response arsenal. This can only be accomplished through extensive education and detailed planning involving all interested parties, and the subsequent development

of fully implementable dispersant use plans in each Area. The commitment should be made, and the planning should begin immediately, in the Northeast and elsewhere around the country. The time is approaching for another major spill in U. S. waters. How shameful it would be not to have resolved the dispersant issue, and to perhaps miss the opportunity to significantly impact the outcome of our nation's next oil spill disaster.

Appendix A

Questionnaire: Environmental & Interest Groups

Introduction: Hello, my name is Tina Burke and I am a graduate student at the University of Rhode Island. I am doing a research project on the involvement of interest groups in oil spill response and planning. May I please speak with someone who could talk to me about your organization's interest, views, and activities in the area of marine environmental protection and oil spill response.

IF ANOTHER PERSON TAKES CALL: Hello, my name is Tina Burke and I am a graduate student at the University of Rhode Island. I am presently doing research in the area of interest group involvement in oil spill response issues and policies to protect the marine environment. This is an important issue that faces the federal government as a result of the Oil Pollution Act of 1990.

If you don't mind, I would like to ask you some questions on this subject in the form of a survey. The interview will last only 10 minutes, okay?

IF NO: May I please schedule a time to call you to conduct this interview. Your input is important for the validity of my research and it will also help to provide insight into how future responses to significant oil spills can adequately consider all interested views.

THE SURVEY

I. TOPIC: Interest of organization in protection of the marine environment.

1a. What is the mission or purpose of your organization?

OK, Please respond to the following statements by choosing the best answer for your organization:

1b. My organization is interested in protection of the marine environment and/or resources within the marine environment.

1. Yes
2. No
3. Other (explain)

1c. Oil spills from tank vessels pose a significant threat to the marine environment.

1. strongly agree
2. agree
3. disagree
4. strongly disagree

1d. The nation's oil spill response policy is important in terms of protecting the marine environment from tanker spills.

1. strongly agree
2. agree
3. disagree
4. strongly disagree

II. TOPIC: Involvement/potential for involvement in oil spill response or oil spill response issues.

2a. Members of my organization have in the past been involved in oil spill responses, or in discussions on oil spill response issues.

1. Yes
2. No
3. Don't Know (ask to speak w/someone else)

If YES: 2aa. I would rate my organization's past involvement in oil spill response and associated issues as:

1. very active (15 pts)
2. somewhat active (10 pts.)
3. marginally active (5 pts.)
4. active only under certain circumstances (5 pts.)
   (such as significant spill size, etc.) - PLEASE EXPLAIN:

2b. The chance or likelihood that my organization may become involved in spill response issues in the <u>future</u> is:

1. definite (15 pts.)
2. highly likely (10 pts.)
3. likely only under certain conditions - WHAT ARE CONDITIONS? (5 pts.)

4. Not likely-------WHY? (0 pts.)

What, if anything, might cause your organization to become involved in oil spill response issues? (SKIP to Sect. III)

IF answered 1,2,or 3 above: 2bb. I expect the level of my organization's involvement in future oil spill response issues to be:

1. very active (15 pts.)
2. somewhat active (10 pts.)
3. marginally active (5 pts.)

AND, 2bbb. If tomorrow a large tanker had an accident off the coast of my state and began to spill a significant amount of oil into the coastal waters, my organization would:

1. Become actively involved in the response actions in order to best protect the marine environment (15 pts.)
2. Monitor the situation and become involved in the response if specific concerns of my organization were not being addressed; or (7 pts.)
3. Not be concerned nor become involved in the spill response (0 pts.)
4. Other: EXPLAIN:

III. TOPIC: Organization's involvement in planning for oil spill response actions.

Since the passage of the Oil Pollution Act of 1990, Area Committees have been formed to develop appropriate response actions to significant oil spills. These committees are made up of members of the federal, state, and local governments, as well as local interest and industry groups. The participation of all of these groups is intended to ensure all views are taken into consideration when developing oil spill response policies.

3a. Does your organization participate in the oil spill response planning activities of your local Area Committee?

1. Yes
2. No
3. Don't know

If NO: 3b. Has your organization been invited to participate in this planning?

1. Yes
2. No
3. Don't know

3c. Would your organization be interested in participating in Area Committee planning for oil spill response in the future?

1. Yes
2. No - WHY??

3. Don't know - EXPLAIN:

Please respond to the following statements by choosing the best answer:

3d. The concerns of my organization with regard to proper oil spill response actions to protect the marine environment have adequately been taken into account in the planning process.

1. strongly agree (15 pts.)
2. agree (10 pts.)
3. disagree (5 pts.)
4. strongly disagree (0 pts.)

3e. The concerns of my organization in terms of proper oil spill response actions to protect the marine environment will be adequately represented by state or other officials at the time of a spill.

1. strongly agree (15 pts.)
2. agree (10 pts.)
3. disagree (5 pts.)
4. strongly disagree (0 pts.)

3f. My organization is satisfied with the opportunity it has to provide input into how oil spill response in the marine environment will be handled.

1. strongly agree (15 pts.)
2. agree (10 pts.)
3. disagree (5 pts.)
4. strongly disagree (0 pts.)

IV. TOPIC: Dispersants as an oil spill response method.

4a. Are you familiar with dispersants and how they work?

1. Yes
2. No - explain issue of dispersants and SKIP to question 4d.

Please respond to the following statements by choosing the best answer.

4b. Dispersants:

1. remove oil from the water via a chemical reaction.
2. break up surface oil slicks into tiny droplets which spread out in the upper water column; or
3. remove oil from the water's surface by causing it to sink

4c. Please choose the statement which most closely accords with your organization's feelings on dispersant use for offshore oil spills.

1. Dispersants are toxic to marine life and should never be used. (0 pts)
2. Dispersants are toxic to marine life and should rarely be used. (5 pts.)
3. Dispersant use involves trade-offs but can minimize the ecological damage of oil spills in certain situations. (10 pts.)
4. Dispersants are extremely useful and should be considered as a first response option for the majority of significant oil spills. (15 pts.)

4d. My organization seeks to/ would:

1. encourage dispersant use (15 pts)
2. encourage careful consideration before dispersants are used; or (7.5 pts.)
3. discourage any use of dispersants for oil spill response (0 pts.)

4e. My organization is familiar with the dispersant use policy currently being developed for response to oil spills off the Northeast coast of the United States.

1. Yes
2. No
3. Don't know

4f. Members of my organization have participated in the planning process to determine when and where dispersants should be used.

1. Yes
2. No

IF YES: 4ff. Has being involved in this planning changed your organization's view of dispersants with regard to their usefulness? EXPLAIN:

IF NO: 4fff. Has your organization been invited to participate in dispersant use planning?

1. Yes
2. No
3. Don't know

If invited, would your organization be interested in participating in the future?

1. Yes
2. No
3. Don't know - explain:

Please respond to the following statements by choosing the best answer:

4g. The concerns of my organization have been adequately taken into account in the current dispersant use planning process:

1. strongly agree (15 pts)
2. agree (10 pts)
3. disagree (5 pts.)
4. strongly disagree (0 pts.)

4h. The concerns of my organization in terms of dispersant use and protecting the marine environment will be adequately represented by state or other officials at the time of a spill.

1. strongly agree (15 pts.)
2. agree (10 pts.)
3. disagree (5 pts.)
4. strongly disagree (0 pts.)

4i. My organization is satisfied with the opportunity it has to provide input with regard to when and where dispersants should be used.

1. strongly agree (15 pts.)
2. agree (10 pts.)
3. disagree (5 pts)
4. strongly disagree (0 pts.)

4j. It may be necessary for my organization to express its views on dispersant use during an actual spill in order to protect the marine environment and/or the public interest.

1. strongly agree
2. agree
3. disagree
4. strongly disagree

Name of Respondent:

Position in organization:

Appendix B

Questionnaire: Industry Groups

Introduction: Hello, my name is Tina Burke and I am a graduate student at the University of Rhode Island. I am currently conducting research on the involvement of interest groups in oil spill response and planning, specifically regarding the use of dispersants. May I please speak with someone who could talk to me about your company's oil spill response planning activities, and its views on dispersant use for oil spill response.

If you don't mind, I would like ask you some questions on this subject in the form of a survey. The interview will last only 5 minutes, okay?

IF NO: May I please schedule a time to call you to conduct this interview? Your input is important for the validity of my research and will also help to identify how controversial response technologies, such as dispersants, may be better used in the future.

THE SURVEY

I. TOPIC: Company's involvement in Area Contingency Planning.

As you may well know, since the passage of the Oil Pollution Act of 1990, entities called Area Committees have been formed to develop appropriate response strategies for oil spills around the country.

1a. Do members of your company participate in the oil response planning activities of any of these Area Committees?

1. Yes
2. No - WHY?

IF NO: How does your company's input on how best to respond to an oil spill become included in these contingency plans?

II. TOPIC: Dispersants as an oil spill response method.

Please respond to the following statements by choosing the best answer.

2a. Dispersants:

1. remove oil from the water via a chemical reaction;
2. break up surface oil slicks into tiny droplets which spread out in the upper water column; or
3. remove oil from the water's surface by causing it to sink.

2b. Please choose the statement which most closely accords with your company's feelings on dispersant use for offshore oil spills.

1. Dispersants are toxic to marine life and should never be used. (0 pts.)
2. Dispersants are toxic to marine life and should rarely be used. (5 pts.)
3. Dispersant use involves trade-offs but can minimize the ecological damage of oil spills in certain situations. (10 pts.)
4. Dispersants are extremely useful and should be considered as a first response option for the majority of significant oil spills. (15 pts.)

2c. My company seeks to

1. encourage dispersant use (15 pts.)
2. encourage careful consideration before dispersants are used; or (7.5 pts.)
3. discourage any use of dispersants for oil spill response (0 pts.)

2d. My company is familiar with the dispersant use policies currently being developed for response to oil spills off the coasts of the United States.

1. Yes
2. No
3. Other - explain:

2e. Members of my company have participated in the planning process to determine when and where dispersants should be used in various areas around the country.

1. Yes
2. No

IF YES: 2ee. Has being involved in this planning changed your company's view with regard to the usefulness of dispersants? EXPLAIN:

IF NO: 2eee. WHY?

2f. The views and concerns of my company with regard to dispersant use have been adequately taken into account in the current dispersant use plans

1. strongly agree
2. agree
3. disagree
4. strongly disagree

2g. My company is satisfied with the opportunity it has to provide input with regard to when and where dispersants should be used.

1. strongly agree
2. agree
3. disagree
4. strongly disagree

Respondent:

Position in the company:

Appendix C

Call Sheet, Interest Group Participation in Oil Spill Response and Dispersant Use Planning

Area:

Organization:

Phone Number:

Point of Contact:

Contact Attempt	*Date/Time*	*Disposition Code*
1	___/___.	_____.
2	___/___.	_____.
3	___/___.	_____.
4	___/___.	_____.
5	___/___.	_____.
6	___/___.	_____.
7	___/___.	_____.
8	___/___.	_____.
9	___/___.	_____.
10	___/___.	_____.
11	___/___.	_____.
12	___/___.	_____.
13	___/___.	_____.
14	___/___.	_____.
15	___/___.	_____.
16	___/___.	_____.

Notes:

Appendix D

List of Survey Subjects

I. Maine/New Hampshire Area

A. Completed Telephone Questionnaire

1. **Friends of Casco Bay**
   Cheryl Seavie/Joe Payne
   (207)799-8574

2. **Maine Marine Mammal Rescue Center**
   Dennis Dorsey, Director
   (207) 883-4562

3. **Sierra Club, Maine Chapter**
   Joan Sacks, Director
   (207) 871-8254

4. **Quoddy Spill Prevention Group**
   Steve Crawford, President
   (207) 853-6238

5. **The Nature Conservancy, Maine Chapter**
   Jim Dow, Field Representative
   (207) 374-2998

6. **Maine Lobstermen's Association**
   Patton White, Executive Director
   (207) 363-6783

B. Survey Not Applicable (screened out)

1. **Maine Association of Conservation**
   (207) 622-5330

2. **Maine Audubon Society**
   (207) 781-2330

3. **Maine Marine Alliance**
   (207) 443-6222

4. **Natural Resource Council of Maine**
   (207) 622-3101

C. Unable to Reach by Telephone

1. **Maine Marine Trades Association**
(207) 865-4575

II. Massachusetts Area

A. Completed Telephone Questionnaire

1. **Massachusetts Audubon Society**
Robert Buschbaum, Coastal Ecologist
(508) 927-1122

2. **The Massachusetts Lobstermen**
Bill Adler, Executive Director
(617) 545-6984

3. **Salem Sound 2000**
Sam Cleaves, Program Coordinator
(508) 741-7900

4. **Save the Bay/Baywatch**
Bruce Berman, Baykeeper
(617) 451-2860

5. **The New England Aquarium**
Maggie Mooney-Seus, Conservation Department
(617) 973-5229

6. **Massachusetts Cetacean Research Unit**
Mason Weinrich, Executive Director
(508) 281-6351

7. **Massachusetts Public Interest Research Group**
Paul Burns, Director of Toxics Program
(617) 292-4800

B. Survey Not Applicable (screened out)

1. **Conservation Law Foundation**
(617) 350-0990

C. Unable to Reach by Telephone

1. **The American Littoral Society**
   (508) 457-1499

2. **Sierra Club, Massachusetts Chapter**
   (617) 227-5539

3. **Gloucester Fish Commission**
   (508) 283-0857

4. **New England Gillnetters**
   (508) 922-3941

D. Refused Telephone Survey

1. **The Nature Conservancy**
   (617) 423-2545

2. **Greenpeace**
   (617) 266-0098/2021

III. Rhode Island Area

A. Completed Telephone Questionnaire

1. **Save the Bay/Baykeeper**
   John Torgan, Baykeeper
   (401) 272-3540

2. **Atlantic Offshore Fishermen's Association**
   Richard Allen, Vice President
   (401) 783-9977

3. **Association for the Preservation of Cape Cod**
   Susan Kadar, President
   (508) 289-2329

4. **Coalition for Buzzard's Bay**
   Mimi McConnell, Executive Director
   (508) 759-1440

5. **The Offshore Mariner's Association**
   Howard Nickerson, Executive Director
   (508) 990-1377

B. Survey Not Applicable (screened out)

1. **Point Judith Fishermen's Cooperative**
   (401) 782-1500

IV. Long Island Sound Area

A. Completed Telephone Questionnaire

1. **Long Island Sound Lobstermen's Association**
   John German, Sr., President
   (516) 286-3335

2. **The Nature Conservancy, CT Chapter**
   Leslie Corey, Jr., Executive Director
   (203) 344-0716

3. **The Connecticut Environmental Caucus**
   Mylin Bull
   (203) 259-6305

4. **The Southern New England Fishermen's Association**
   Arthur Madeiros, President
   (203) 535-3150

B. Survey Not Applicable (screened out)

1. **Long Island Sound Task Force**
   (203) 327-9786

2. **Connecticut Citizen's Action Group**
   (203) 561-6006

C. Unable to Reach by Telephone

1. **Sounds Conservancy, Inc.**

2. **People Against Pollution**

3. **Friends of the Bay**
   (212) 206-1106

4. **The Long Island Sound Keeper**
   (800) 933-7686

V. New York/New Jersey Area

A. Completed Telephone Survey

1. **New York Harbor Baykeeper/American Littoral Society**
   Andy Willner, Baykeeper
   (908) 291-0176

2. **Natural Resources Defense Council**
   Nina Sankovitch, Consulting Attorney
   (212) 724-4329

3. **New York City Audubon Society**
   Peter Mott, President
   (718) 543-5000

4. **Clean Ocean Action**
   Cindy Ziph, Executive Director
   (908) 872-0111

C. Unable to Reach by Telephone

1. **Hudson River Fishermen's Association**

VI. Industry Groups

1. **Sun Transport**
   Tom Crawford
   (610) 859-1004

2. **Exxon**
   Dave Whims, Response Advisor
   (713) 656-9905

3. **Shell**
   Jay Lambert/Dr. James Beela

(713) 241-2666

4. **Texaco**
   Mark Weller, Manager, Worldwide Emergency Response
   (914) 838-7254

5. **Mobile**
   Robert Leary, Coordinator, Crisis Response Planning
   (703) 846-2761

6. **OMI Corp.**
   Dick Holuska, Vice President of Safety Quality and Risk Mgt.
   (212) 986-1960

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AN EVALUATION OF NOAA's ROLE IN OCEAN DUMPING POLICY IMPLEMENTATION

BY

KENNETH W. BARTON

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Kenneth W. Barton

Approved: R. H. Burroughs

Major Professor: Dr. Richard H. Burroughs

University of Rhode Island

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ABSTRACT

Dumping of wastes into the ocean has gone on for years especially in the New York Bight. The National Oceanic and Atmospheric Administration (NOAA) is mandated by Title II of the Ocean Dumping Act of 1972 to investigate the effects of ocean dumping on the marine environment. However, there is a perception within Congress, the public and other agencies that NOAA is not meeting it's responsibilities with regard to ocean dumping research.

The effectiveness of NOAA's ocean dumping policies and programs and the difficulties in implementation experienced by the agency are evaluated by applying George Edwards' theory of policy implementation. According to this theory, four factors - communications, resources, dispositions and bureaucratic structure - are critical in understanding the implementation process. In this case study, NOAA's present lack of participation in the ocean dumping issue can be analyzed by examining the historical events of the past twenty years as they apply to the policy implementation theory.

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CHAPTER I

INTRODUCTION

Dumping of wastes into the ocean has gone on for years especially in the New York Bight. The National Oceanic and Atmospheric Administration (NOAA), as the federal government's primary source of data and information concerning problems of the ocean and atmosphere, has a responsibility to investigate man's introduction of wastes into the marine environment. This has been mandated not only in the agency's mission[1] but also by Title II of the Marine Protection, Research, and Sanctuaries Act of 1972.[2] However, perceptions within Congress, the public, other agencies and within NOAA itself are that NOAA is not meeting its responsibilities with regard to ocean dumping research.

There are three major questions that arise in this discussion. How have NOAA's ocean dumping policies been shaped? What difficulties have arisen in the implementation of those research policies? Finally, how have these difficulties shaped NOAA's present role in the ocean dumping situation? As the science of ocean dumping evolved and impacted the regulatory process, confusion was created as to NOAA's role in both processes. This paper, therefore, will examine NOAA's policies (science or regulatory ?) and the resultant implementation by using a theory developed by George Edwards in his book Implementing Public Policy.[3]

Edwards believes that four factors influence effective policy development and implementation. These are communications, resources, dispositions and bureaucratic structure. This study of NOAA will examine the scientific and historical events relating to ocean dumping as they apply to the above factors in the context of Edwards' theory. The format of this paper will include a discussion of Edwards' theory followed by an overview of ocean dumping and the historical events that shaped NOAA's policies. Finally, the development and implementation of NOAA's policies will be analyzed using each of Edwards' factors as they apply to this case study.

NOTES

1. Robert G. Fleagle, "NOAA's Role and the National Interest", Science, Technology and Human Values, Vol. II, John Wiley and Sons, Spring 1986

2. Public Law 92-532: Marine Protection, Research and Sanctuaries Act of 1972" (hereafter "Ocean Dumping Act")

3. George C. Edwards III, Implementing Public Policy, Congressional Quarterly Press, 1980 (hereafter, "Edwards").

CHAPTER II

OCEANOGRAPHIC AND DUMPSITE BACKGROUND

A discussion of ocean dumping cannot be complete without a basic description of the oceanographic characteristics of the New York Bight and the dumpsites contained within it. Although the Bight is a receptacle for the disposal of dredge spoils, construction debris (commonly called cellar dirt) and industrial wastes, for purposes of this discussion ocean dumping refers only to sewage sludge generated by municipal sewage treatment plants and dumped at the 12 and 106-Mile dumpsites.

The New York Bight and 12-Mile Dumpsite

The New York Bight extends from Delaware Bay to the eastern end of Long Island and out to the 200 meter depth contour. The Bight's apex, where since 1924 most of the ocean dumping has taken place, is an area bounded to the south by 40° north latitude, to the east by 73°15' west longitude, on the north by the Long Island shore, and on the west by the New Jersey shore.[1] Until 1986 when the phase-in of sludge dumping at the 106-mile site began, all of the sewage sludge generated by New York City and surrounding municipalities was dumped at the 12-mile dumpsite.[2] This area (Fig. 1) is located twelve miles east of Sandy Hook, New Jersey on the east slope of the Christiaensen Basin in

relatively shallow water (less than 25 fathoms).

Circulation of the water in this portion of the inner New York Bight is strongly influenced by that of the whole Bight (Montauk Pt. to Cape May) and by that of the Middle Atlantic Bight (Nantucket Shoals to Cape Hatteras). However, there are some local influences which have significant effects on the circulation, principally the bathymetric configuration of this corner of the Bight and the flow from the Hudson-Raritan estuary.[3]

Water mass properties of this portion of the Bight are influenced by circulation, weather and effluent reaching the coastal marine waters. Besides the dumping of wastes, contaminants enter the water column by way of estuarine effluents and atmospheric fallout.[4]

The 106-Mile Dumpsite

The 106-mile dumpsite is a deep ocean dumpsite located between 38°40'N to 39°00'N and 72°00'W to 72°30W or approximately 106 mile southeast of Sandy Hook, New Jersey (Fig. 1). The site is seaward of the continental shelf break and water depths range from 1000 to 1400 fathoms. The site was used predominantly for dumping of acid and alkaline-based industrial wastes from 1961 to 1987.[5] Presently, no industrial concerns hold permits for industrial waste dumping. As of December 1987 all sewage sludge originally dumped at the 12-mile site began to be

dumped at the 106-mile site.[6]

Oceanographic conditions at the 106-mile site are variable, depending upon the water mass occupying the site. Slope water is the predominant water mass, however, shelf water incursions do occur, especially in the spring when fresh water runoff and wind forcing cause offshore movement of the shelf/slope front. Northward meandering of the Gulf Stream can cause Gulf Stream water to invade the site although this phenomenon is rare. More commonly, warm core rings may traverse the region from northeast to southwest, aperiodically bringing strong currents and Gulf Stream or Sargasso Sea water to the site.[7]

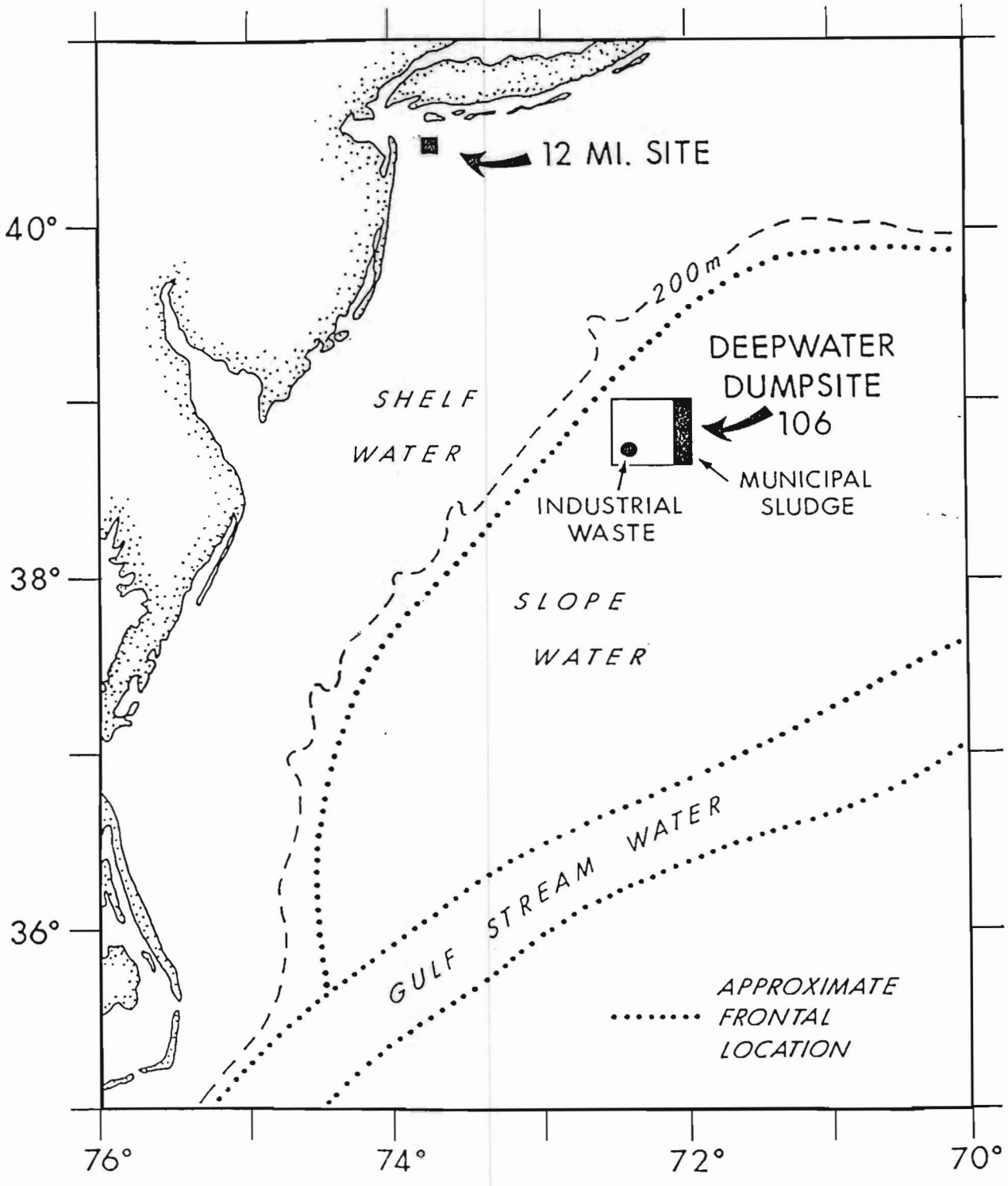

Fig. 1. Chart showing the 12 and 106-Mile dumpsites in relation to oceanographic features in the New York Bight region.

NOTES

1. United States, National Marine Fisheries Service, "Response of the Habitat and Biota of the Inner New York Bight to the Abatement of Sewage Sludge Dumping - Progress Report, July 1986 -June 1987", 1987

2. Edward D. Santoro, "Status Report - Phase Out of Ocean Dumping of Sewage Sludge in the New York Bight Apex", Marine Pollution Bulletin 18: 1987 pp.278-280

3. Memorandum from M.C. Ingham, chief, Physical Oceanography Branch, National Marine Fisheries Service, "Summary of the Physical Oceanography of the Inner New York Bight" dated 12 June 1986 (hereafter cited "Ingham Memo").

4. Ingham memo, page 2

5. United States, Environmental Protection Agency, "Draft Monitoring Plan for the 106-Mile Deepwater Municipal Sludge Site", 1986 (draft) pp. 13-14.

6. Kenneth W. Barton, "Report of Water Masses Receiving Wastes from Ocean Dumping at the 106-mile Dumpsite: October 1, 1986 through September 30, 1987." Data Analysis Product 24, December 1987, NMFS/NOAA

7. Ibid., p. 1

CHAPTER III

PUBLIC POLICY IMPLEMENTATION THEORY

Edwards describes public policy implementation as the stage of policymaking between establishment of a policy and the consequences of the policy for the people it affects[1]. If the objective of a policy is to alleviate a problem and the results are unsuccessful it may be a fault of either the policy or the implementation of that policy. Often it is both. In the case of ocean dumping, the establishment of policy culminated in the passage of the Marine Protection, Research and Sanctuaries Act of 1972 (also known as the Ocean Dumping Act) and the enactment of the related regulations. While Congress had originally intended to phase out ocean dumping in five years, the difficulties faced by NOAA, as the science agency, and EPA, as the regulatory agency, in the implementation of that policy may have contributed to the continuation of ocean dumping today.[2]

The four factors Edwards believes influence effective policy and implementation are communication, resources, dispositions and bureaucratic structure and each are discussed below.

COMMUNICATIONS

The first requirement for effective policy implementation is ensuring that those who are to carry out policy know what they are supposed to do. This might entail Congress passing laws that are clear in their intent so that misunderstandings by the implementors are avoided. Similarly, this same type of clarity of communication is important within the confines of an agency or office. Disagreements and misunderstandings about policies can lead to distortion of communications within all levels of government. Lack of clarity in policymaking can also result from ambiguous court decisions, public opposition, competing goals and unfamiliarity with new programs. All these factors can upset communications and in turn restrict implementation.[3]

Decentralization of bureaucracy often leads to communication difficulties. The more steps there are in the implementation process, the more likely it is that the policy will be watered down.[4] In the case of ocean dumping, the 1972 law mandated the involvement of no less than four federal agencies in the implementation of the country's first ocean dumping policy.[5]

Finally, lack of consistency between lawmaking and subsequent implementation orders can result in confusing results.[6] Environmental policymaking in the Reagan

administration has largely ignored congressional intent, judicial standards and public preferences.[7] Therefore, when implementors receive inconsistent instructions, they will inevitably be unable to meet all the demands made upon them.

RESOURCES

Implementation orders may be accurately transmitted in a clear and consistent manner but if implementors lack the resources to carry out the policies, implementation is likely to be ineffective. Resources are traditionally thought of as funding, staffing and skills[8] but as seen in the case of ocean dumping good information on inputs (i.e. what and how much is being dumped where)[9] is as important a resource to the decisionmaking process. Unfortunately, the four limiting resources are often interrelated. Without enough staff or funding an agency cannot acquire the necessary information to accurately implement policy. The ability of NOAA to supply this needed resource is the major question of this section.

Because of the complexities involved in the budgetary and personnel processes of the government I intend to briefly touch on this aspect of the resource problem as it relates to policy implementation.

DISPOSITIONS

In effective policy implementation, the implementors must not only know what to do and have the resources available, they must also have the desire to carry out a policy. Differing attitudes and perspectives exist in all levels of government, from top decisionmakers down to individual bureaucratic units and these, in turn, affect policy at various points.[10]

Bureaucratic units may disagree over responsibility for an activity thus hindering implementation. During the early years of the ocean dumping controversy the competitive atmosphere between NOAA and EPA made it difficult for the two agencies to follow out the mandate set forth in the Ocean Dumping Act.[11] Although specific departments within each agency worked closely and well together (for example EPA's region II office and NOAA's MESA) there was tension in Washington as the two agencies competed for the various responsibilities and limited funds.[12]

The mission of a specific agency mandated to carry out a policy may conflict with that policy. An example of dispositional problems can be seen between various departments within NOAA during the early 1980's when NOAA ocean dumping policy changed from protection of the ocean to a belief that under certain circumstances, ocean dumping was a viable alternative to the sewage sludge disposal issue.[13]

BUREAUCRATIC STRUCTURE

The prominent characteristics of bureaucracies, namely standard operating procedures (SOP's) and fragmentation, are seen by Edwards as possible deterrents to effective policy implementation. SOP's are defined as routines to help public officials to make numerous everyday decisions. However, SOP's can inhibit change and are often obstacles to action. Fragmentation is described as the dispersion of responsibility for a policy area among several organizational units. It can lead to diffusion of responsibility and can make coordination of policies difficult.[14]

In the context of NOAA's involvement in the ocean dumping issue, the inherent problems of bureaucratic structure have played a significant role. From the Marine Ecosystem Analysis project (MESA) to the National Marine Fisheries Service (NMFS), the fragmentation of NOAA has contributed to its inability to meet its responsibilities. Similarly, interagency problems existed between NOAA and EPA as both agencies struggled with the difficulties of a new policy.[15]

NOTES

1. Edwards, p. 1

2. Philip M. Cohen, "Evolution of NOAA Policies on Ocean Dumping", December 1986, OAD/NOS/NOAA (hereafter, "NOAA Policies")

3. Edwards, p. 17-19

4. ibid., p. 20

5. Ocean Dumping Act

6. Edwards, pp. 40-42

7. M.E. Kraft and N.J. Vig, "Environmental Policy in the Reagan Presidency"' Political Science Quarterly, Vol. 99, No.3, Fall 1984

8. Edwards, p. 53

9. Richard H. Burroughs, "Ocean Dumping - Information and Policy Development in the USA", Marine Policy, Vol. 12, No. 2, April 1988 pp. 96-104

10. Edwards, pp. 89-97

11. Telephone conversation with Kenneth Kamlet, previously with the National Wildlife Federation, in April 1988.

12. Personal communication with Dr. R. Lawrence Swanson, Director, Waste Management Institute, State University of New York at Stony Brook, in February 1988.

13. NOAA Policies Report, see note 1, p. 10

14. Edwards, pp. 125-134

15. Communication with Swanson, also see Note 1.

CHAPTER IV

AN HISTORICAL PERSPECTIVE

Public policies result from sequences of decisions based on political decisions and legislative mandates often as a result of social and executive pressure. Environmental policymaking is not only governed by those factors, but by natural and man-induced events and by scientific findings. In examining NOAA's ocean dumping policies it can be shown that all of the above factors have either contributed to or inhibited the implementation of that policy[1]. This chapter discusses, chronologically, the significant events that have shaped NOAA's policies in preparation for the analysis of implementation processes in the following chapter.

The Early 1970's

In the late 1960's an increasing awareness of the need to strengthen the federal government's marine biological and technological capabilities led to a presidential commission recommending a unified agency to oversee the oceans and atmosphere.[2] NOAA was formed by executive order in 1970 by President Richard Nixon[3] and encompassed such agencies as the National Weather Service, Coast and Geodetic Survey, Bureau of Sport Fishing and Wildlife (parts of which were

incorporated into the National Marine Fisheries Service) and others.

NOAA was barely a year old when furor over a report on conditions of the New York Bight thrust the agency into the public eye. The paper, called the "Sandy Hook Report" was prepared for the U.S. Corps of Engineers by the Sandy Hook Marine Laboratory to examine the effects of dredge spoil and sewage sludge dumping in the inner New York Bight. The results of the study showed that conditions in the Bight were polluted enough that no macrofauna could exist in dumpsite areas (including both sewage sludge and dredge spoil areas)[4] and that a "dead sea"[5] had been created in the area. Disagreements ensued between agencies, politicians and the public over the significance of the report and the actual degradation of the Bight and created controversy that led to congressional investigations and new legislation[6].

During this same period the Food and Drug Administration banned shellfishing in the inner New York Bight (Fig. 2). The FDA's decision was based on total and fecal coliform bacteria levels which exceeded those recommended by the Federal Water Pollution Control Administration for estuarine waters used for shellfish harvesting and cultivation[7]. These findings were in part taken from the "Sandy Hook Report' and from other studies done by the Sandy Hook Lab.

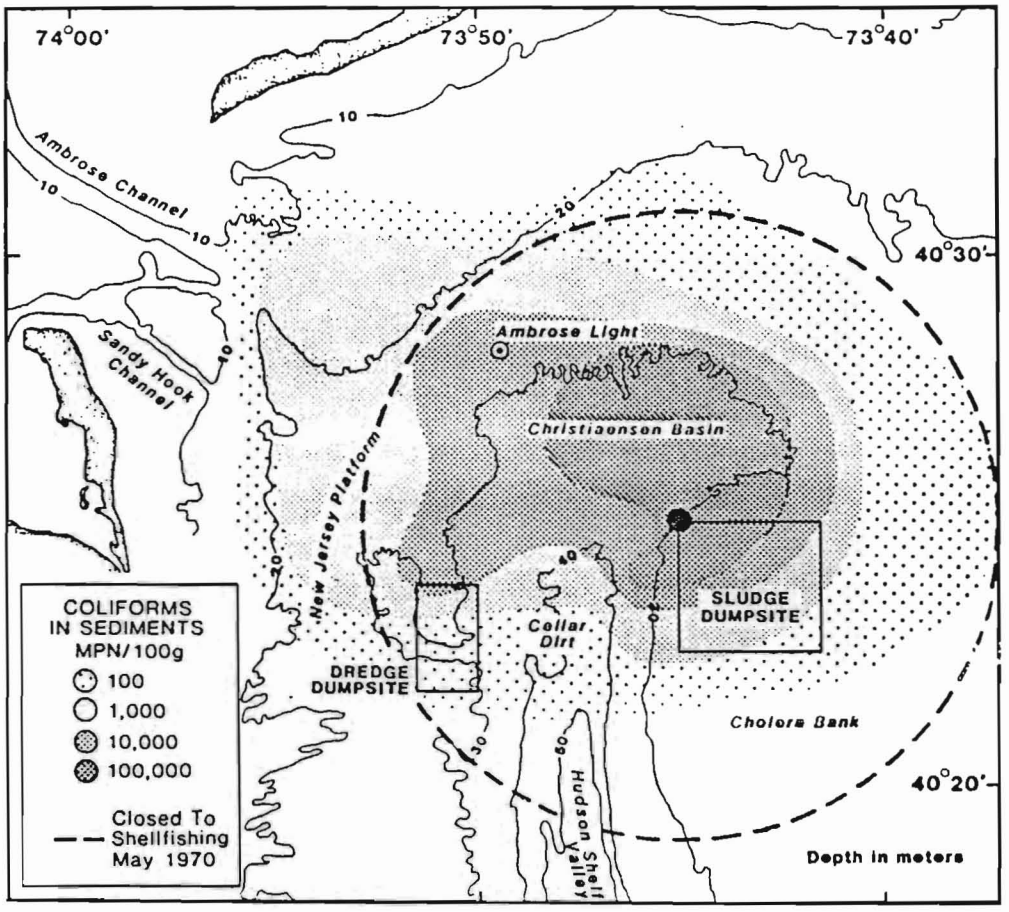

Fig. 2. Location of the 12-mile sewage sludge dumpsite, dredge materials dumpsite and area closed to commercial shellfishing in 1970 in the NY Bight[8]

In response to the ongoing controversy in the New York Bight and in recognition of the global impacts of ocean disposal of wastes, the President's Council on Environmental Quality (CEQ) issued it's 1970 report, "Ocean Dumping: A National Policy"[9]. This report stated "[i]f no action is taken and ocean dumping continues to increase, the long term damage to the marine environment will be great."[10] These strong words not only set the tone for the national policy of the early 1970's, they also embodied the growing belief at the time that the oceans were to be protected and that dumping was a temporary stop-gap measure to be eliminated as rapidly as possible[11].

As a direct result of the CEQ Report Congress enacted The Marine Protection, Research and Sanctuaries Act of 1972 (MPRSA). The Ocean Dumping Act, as it is more commonly referred to, in Title I directed the Environmental Protection Agency and Corps of Engineers to establish and implement regulatory programs for ocean dumping. Title II required EPA and NOAA to conduct comprehensive research and monitoring regarding the effects of ocean dumping and to investigate and study alternative disposal methods[12]. The agencies were also to determine methods of minimizing or ending as soon as possible the ocean disposal of any "material which may unreasonably degrade or endanger human health, welfare, or amenities, or the marine environment, ecological systems, or economic potentialities...."[13].

Already recognizing the need to study the effects of human interference in marine environments, NOAA had created the Marine Ecosystem Analysis Project (MESA) in early 1973. The program's goals were 1) to establish an environmental baseline, 2) to monitor, predict, and support efforts to control conditions that degrade the environment and 3) to alert responsible officials of the onset of environmental change[14]. The New York Bight was selected for MESA's five year pilot program because of it's acute environmental problems but was considered independent of NOAA's requirements under Title II of the Ocean Dumping Act[15]. Other areas such as Prince William Sound and Puget Sound were considered as likely sites for MESA studies after the completion of the pilot program[16].

Not only a scientific data collection and analysis program, the MESA/New York Bight Project also provided funding for other research that would identify and answer pertinent environmental questions about the New York Bight. More importantly, perhaps, the Project was responsible for the synthesis of the available information about the Bight, putting it into a form that could be used by those developing policy and regulations. The original intent of the project was to focus on the Bight as an ecosystem, that is, look at physical and biological processes and anthropogenic effects on those processes. Ocean dumping was seen as only one aspect of the Bight's dynamics[17].

In 1973 all this changed. Dr. William H. Harris, a geochemist from Brooklyn College announced findings that sewage sludge dumped at the 12-mile site was, over the three years of his study, working it's way inshore toward Long Island beaches[18]. National interest was sparked by newspaper articles describing an uninterested and unconcerned EPA and threats of a "sludge monster" defiling Long Island's south shore beaches[19].

In the middle of all this controversy was NOAA's MESA program. Dr. Larry Swanson, director of the MESA program, testified at an EPA public hearing that there were potentially deleterious effects from sewage sludge and indicated an "urgency and importance [in] determining more accurately the extent of sludge contamination, the oceanic factors influencing sludge movement, and the extent to which sludge is impacting or jeopardizing marine life and beaches."[20] His conclusion, though, regarding likelihood of sewage sludge migration of towards shore, was understandably vague due to the fact that there was little information available at that time to make any judgments[21]. These determinations, arguably inconclusive, were used by both EPA and the opponents of ocean dumping to argue their respective cases and brought NOAA into odds with both factions. As a result of it's role as "scientific expert", and with the increased congressional and media attention, NOAA was forced to place more focus on the NY Bight Project

sewage sludge work and less on the original intent of the MESA program[22].

In response to the increased controversy and negative scientific data EPA decided that sludge should be dumped further offshore. In 1974, NOAA was called upon to find two possible sites and reluctantly examined sites between 28 and 70 miles offshore. Eventually NOAA decided upon one 60 miles offshore although it was never considered by NOAA to be a viable alternative to the 12-mile site. EPA established a deadline of July 1976 for cessation of dumping at the 12-mile site and earlier if the findings of Dr. Harris were proven true. All dumping would be moved to the 60-mile site until December 1981 at which time all dumping would cease. NOAA continued to oppose EPA's decisions regarding the offshore site and when MESA was able to prove that sludge was not, in fact, migrating shoreward, EPA rescinded it's plans for the alternate sites. By now it was clear NOAA's findings and decisions had become integral in shaping EPA's policies and regulations and in congressional and public investigations into the ocean dumping issue[23].

Renewed controversy erupted in 1976 after a series of "floatable" incidents fouled the Long Island south shore. The resultant beach closures fueled public outrage and required the New York Bight Project to once again respond to heightened media and political attention. These episodes were quickly attributed to a series of isolated events in

Bight area and within seven months an in-depth analysis was available to the public. This quick response was credited to the directed attention of the NY Bight Project and it's growing understanding of the complexities of the New York Bight[24].

The second incident of the summer of 1976 illustrated that there was still much to learn about the processes at work in the region. A massive fish kill along the New Jersey coast clearly identified the potential impact of human interference in the marine environment. The event offered the NY Bight Project the opportunity to study oxygen depletion conditions and raised difficult scientific questions regarding anthropogenic versus natural occurrences of this type. While this large scale event was determined to be of natural origins, similar pollution-related smaller scale events illustrated the risks to the Bight. Subsequent MESA reports contributed greatly to the understanding of oxygen depletion conditions.[25]

1977 to 1981

The year 1977 was a confusing yet significant time for the formulation and implementation of NOAA ocean dumping policy. For five years (since the 1972 passage of the Ocean Dumping Act) NOAA's ocean dumping programs had remained unfunded. All work was carried out under other programs and authorizations. Finally, NOAA's FY 1977 budget included

approximately $1.4 million dollars for ocean dumping research and monitoring[26]. With this funding NOAA established the Ocean Dumping Program whose vague goals were to assist EPA by providing data for dumpsite analysis and support of that agency's regulatory process as mandated by Title II of the Ocean Dumping Act[27]. This department was a separate entity from the MESA/NY Bight Program.

NOAA ocean dumping research continued in the NY Bight in 1977. MESA/NY Bight Project findings indicated little improvement would result in the Bight if ocean dumping were stopped, especially if no action took place to control other pollutants input. It also strongly opposed any movement of sludge dumping to another continental shelf site but considered the 106-mile site suitable for emergency dumping. (This actually took place in 1977 and 1978 when Camden, New Jersey was forced to dispose of its sludge at the offshore site.) Another branch of NOAA, the National Ocean Service (NOS), had been conducting surveys at the 106-mile site to determine baseline environmental conditions since industrial wastes had been dumped there for years and little was known about the area[28].

Concern was growing about the likelihood of actually "getting out of the ocean" since the search for viable alternatives to ocean dumping was proving fruitless. NOAA was not involved in research into alternatives since most were land-based and fell under EPA's purview. Even though

the 1977 amendments to the Ocean Dumping Act reaffirmed congressional intent to end ocean dumping that unreasonably degraded the marine environment by December 1981, the once protectionist attitude of the government as a result of a strict interpretation of the law was now in a state of reappraisal. A change in the research focus at the 106-mile site in 1977 and 1978 illustrated these changing attitudes. Baseline environmental studies were replaced by investigations into broader use of the site for ocean disposal[29]. The Ocean Dumping Act's call for "off-the-shelf sites whenever possible" provided a mandate for this action and a possible viable alternative to the 12-mile site. Concern within the Congress and the scientific community over the unknowns of dumping in the deeper ocean were outweighed by the known deterioration of the inshore dumpsites and the resultant desire to end the contribution to that degradation. EPA's new permit renewal process reflected this change in policy by allowing continued ocean dumping based on need, status of available alternatives and an acceptable plan for phase-out within the time frame of the law. NOAA's 1977 policy, although still in a state of flux, was modified to parallel these changes:

> " 1. It is NOAA policy to oppose ocean disposal of sewage sludge; the agency endorses EPA's policy to terminate this dumping by 1981.
>
> 2. NOAA shall continue to oppose moving the existing sewage sludge dumpsite in the New York Bight on the basis that to date we have developed no conclusive evidence that dumping at that site has resulted in

threat to public health or a danger to local beaches. However, as dumping at that location continues, such a threat could materialize, necessitating rapid relocation. We believe that the problem of sewage sludge dumping in the New York Bight should be resolved in the framework of the Interstate Sanitation Commission's Sewage Sludge Disposal Management Plan. However, in the event EPA makes the decision to move that dumpsite, and the choices are either DWD-106 or the 60-mile site, then NOAA favors the use of DWD-106 in order to avoid despoiling a new area.

3. NOAA will not oppose any interim permits issued by EPA to allow dumping of sewage sludge at DWD-106 on a temporary basis by the cities of Philadelphia or Camden in order to allow those municipalities time to develop their proposed land-based disposal alternatives."[30]

All of these changes, though, were still governed by the December 1981 deadline. The use of the oceans for dumping of certain substances was only seen as the best disposal option for the immediate future.

The passage in 1978 of the National Ocean Pollution Planning Act (NOPPA) mandated the establishment of NOAA's National Marine Pollution Program. The focus of this new program was to:

- prepare and update every three years a comprehensive five-year plan for the overall Federal effort in ocean pollution research, development,and monitoring (Section 4);

- provide financial assistance for such activities if they received high priority in the five-year plan and are not being addressed adequately by any existing Federal programs (Section 6);

- establish a comprehensive, coordinated, and effective ocean pollution research, development, and monitoring program (Section 5);

- insure that results, findings, and monitoring programs are disseminated in a timely manner and useful form to Federal and user groups having an interest in

such information (section 8).[31]

Programs such as the Status and Trends Program, National Shellfish Register and Consequences of Contaminants Program emerged later as a result of this legislation. All had similar goals as the original MESA program but with more directed objectives. While the MESA/NY Bight Project continued to address the very specific issues of ocean dumping in the New York Bight this legislation intended to bring a more national focus to NOAA ocean pollution research, development, and monitoring programs[32]. The NOPPA legislation also resulted in the establishment of the Office of Marine Pollution Assessment (OMPA) at NOAA headquarters in Rockville, Maryland. The goals of this program were the same as the legislation and brought NOAA in line with the new law. Since ocean dumping was included, the Ocean Dumping Program was incorporated into this department.

In September 1979, the NY Bight Project field operations ended after almost seven years, two years longer than the original intent. In that time, though, the program was responsible for collecting more information about the New York Bight than any other program of its type. It contributed greatly to the establishment of federal ocean dumping policy and regulations and was highly regarded for it's research results regarding both ocean dumping and other environmental processes at work in the New York Bight[33].

With the end of the NY Bight Project NOAA transferred the MESA program to NOAA headquarters under OMPA. In 1981 the MESA program officially ended and it's responsibilities and mission objectives were absorbed into OMPA. No other estuaries were studied by this program as had been originally envisioned when MESA was formed in 1973. During this same period, NOAA administrator, John Byrne, attempted to move the Ocean Dumping Program to Seattle, Washington, a move that was presented as an attempt to strengthen NOAA's pollution programs in the northwest. Congressional disapproval prevented it from happening and later that year, OMPA was reorganized into Ocean Assessments Division (OAD), a department that continues today (Fig. 4).[34]

Two events in 1981 contributed significantly to the future direction of federal and program ocean dumping policies. The first was the National Committee on Oceans and Atmosphere (NACOA) report titled "The Role of the Ocean in a Waste Management Strategy". The report recommended a "multimedia" approach to the disposal of wastes with an emphasis on a determination of costs versus benefit or risk. The report specifically recommended that EPA reverse its policy that no ocean dumping permit be issued when a land-based alternative exists. It went on to say that ocean dumping by barge or outfall should be allowed to continue in areas where no unreasonable degradation has resulted if appropriate conditions existed and there was adherence to

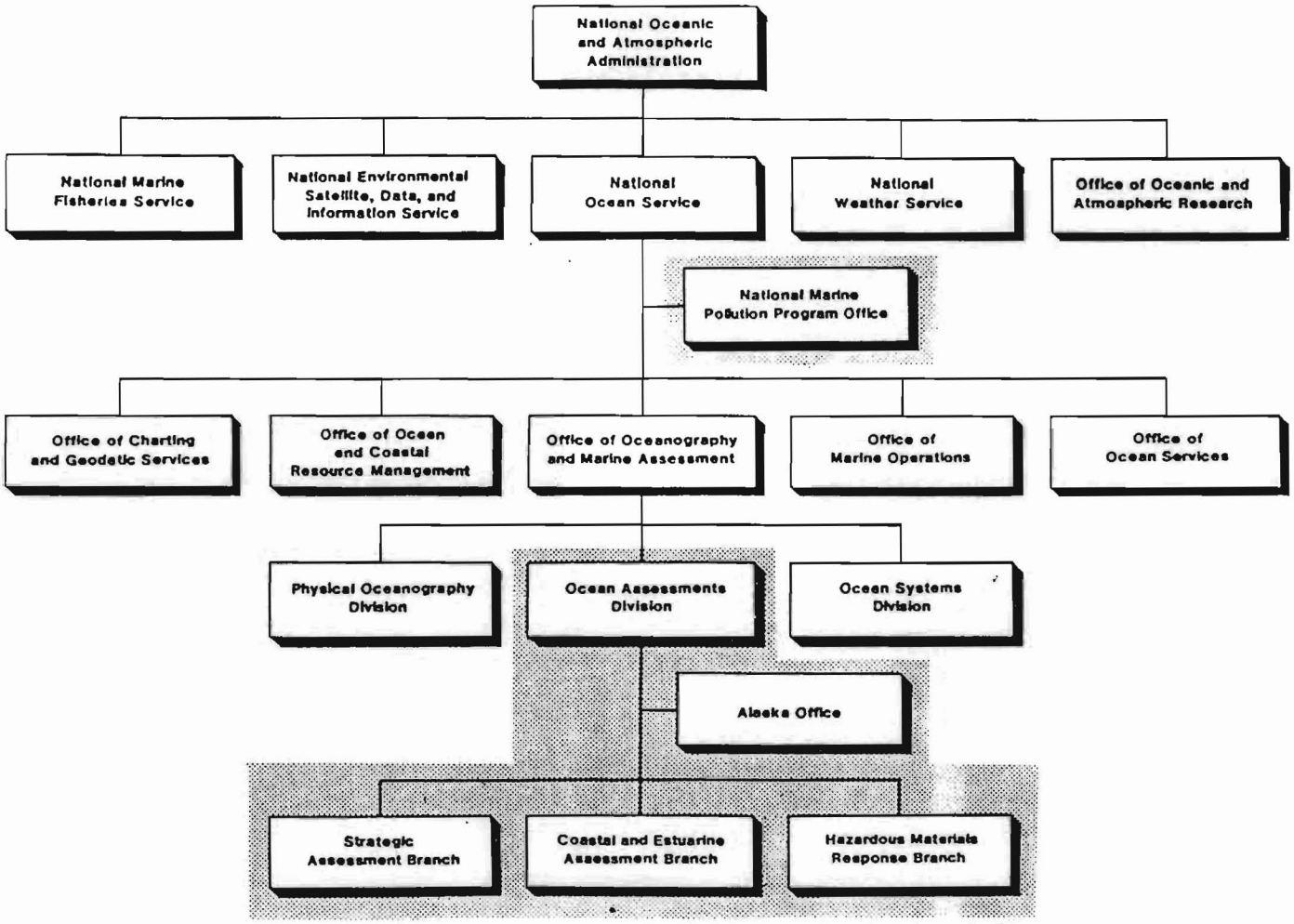

Fig. 3. The NOAA Organization for Ocean Pollution Research Activities[35]

adequate safeguards and monitoring practices. It advised EPA to consider the cost and feasibility of land-based alternatives versus those of ocean disposal and determine the relative risk of either to the degradation of the environment and to human health. This report, therefore, encouraged policy and management decisions be made in the context of risk assessment and with a less strict interpretation of the applicable laws[36].

The second event of 1981 responsible for a change in policy was the judicial decision made by Federal Judge Abraham Sofaer in CITY OF NEW YORK v. EPA.[37] Since 1973, New York City's sewage sludge had failed to meet EPA's environmental impact criteria for a special permit to be disposed of at sea. This was because the levels of PCB's, hydrocarbons, and other pollutants exceeded EPA standards. New York City had, nevertheless, been dumping using an interim special permit which allows waste to be dumped at sea even though it violates the criteria for the special permit and if there is no land-based alternative for disposal. In 1980 EPA denied New York's application for an interim permit based on the new stricter regulations imposed since 1977. In response, New York challenged EPA's interim permit process and evaluation criteria. The final court decision was in favor of New York City, stating that EPA's criteria for determining whether New York's ocean dumping would unreasonably degrade the marine environment,

ecological systems and economic potentialities was "arbitrary and capricious"[38]. The decision further stated that the EPA must consider equally the nine statutory criteria used to evaluate all permit applications. Essentially, the include the environmental effect of the proposed dumping, the need for a permit, the availability and potential impact of alternative methods of disposal and the effect of the proposed action on aesthetic, recreational and economic values.[39]

The presumed desire of the Ocean Dumping Act was to protect the oceans from increased degradation as a result of ocean disposal of waste. It also intended that EPA be delegated broad discretion in its duty to prevent and strictly regulate ocean dumping[40]. The results of this court case and the decision by EPA not to appeal Judge Sofaer's ruling, while betraying the original intent of the Ocean Dumping Act, more importantly, perhaps, contributed to an emerging national policy, one of non-preferential treatment of the ocean as a waste disposal medium[41].

1982-1988

The new attitudes towards ocean dumping, brought about by the events of the previous three years, were accompanied by increased activity in research and policy-making. EPA extended dumping at the 12-mile site for New York City and six New York and New Jersey municipalities. NOAA-sponsored

research at the 106-mile site indicated the environmental feasibility of dumping sewage sludge there. Finally, some cities (Boston, Baltimore and Washington, D.C) were exploring the possibility of the disposal of their wastes at sea[42].

In May 1983, NOAA, in a major shift of policy, issued this statement:

> "Waste disposal practices should be chosen to avoid significant risk of harm to living and nonliving resources in any environmental medium - oceans, land, fresh water, and air. If it is determined that disposal is the preferred option to a potential waste problem, then disposal practices likely to cause least risk of significant harm regardless of medium should be chosen. NOAA does not oppose selection of the ocean as a disposal site if comparative assessment of all reasonable disposal options indicates that the ocean option poses the least risk of significant harm. If disposal in the ocean is currently causing or contributing to conditions that cause significant risk of harm to the marine environment, NOAA urges the timely assessment of alternative disposal practices and the selection of an environmentally acceptable practice."[43]

This mirrored the already growing trend to include the oceans in a waste management strategy, exactly as the NACOA report had suggested[44].

During the same time, at a congressional hearing, NOAA testified as to the desirability of moving dumping from the 12-mile to the 106-mile dumpsite. In the past, NOAA had maintained a policy that little recovery of the 12-mile site would be observed unless the input of other pollutants was to be halted. Moving dumping out of the 12-mile site was considered unwise if it meant compromising another area.

However, new data had been collected that indicated that it was environmentally feasible to dump sewage sludge at the deeper dumpsite. These included:

- dumped sewage sludge could be diluted by a factor of 10^4 within a few minutes and 10^5 within a day;

- laboratory and field experiments do not find significant low level effects at these concentrations;

- there would be negligible benthic effects;

- the concentration and distribution of contaminants would not be such as to cause much accumulation in migratory or residence fish, although a few contaminants (e.g. PCBs) in sewage sludge probably contribute to bioaccumulation; and

- there would be no apparent threat to human health.[45]

NOAA testified that it's newest policy, based on the above information, meant that it not only favored use of the deep water site over the 60-mile site (EPA had begun to consider this site again) it also favored it above the 12-mile site[46].

From 1983 to 1985 investigations into transferring sewage sludge disposal to the 106-mile site continued. The result was that in April 1985 EPA issued a final denial of petitions to re-designate the 12-mile site along with a request that the nine municipalities still dumping at the 12-mile site transfer their operations to the 106-mile site. The principal factor in this decision was that if dumping at the 12-mile site were to continue in the manner that would meet the limited permissible concentrations requirements it had the potential for creating navigational hazards. In

addition, it was shown that the primary source for sewage-related contaminants found in the Christiansen Basin and ocean floor north of the site to within five nautical miles south of Long Island was a result of ocean dumping of sludge at the inshore site. Along with the continued closure of shellfishing beds in the area, increased levels above the normal ambient levels of heavy metals and halogenated hydrocarbons were observed at the site. An orderly 1 1/2 year phase-out schedule was negotiated with the dumpers the controlling factor being the lack of ocean-going barges necessary for transport of the sludge to the offshore site required a 1 1/2 year step-wise schedule[47]. Completion of the change-over to the 106-mile site was accomplished on December 31, 1987.

Since early 1988, controversy has once again erupted over ocean dumping. Fishermen claim that catch totals are down and the incidence of disease in shellfish is on the increase in the northeast as a result of environmental degradation from dumping at the offshore site. Coastal communities are angered over episodes of medical wastes washing up on the beaches from New Jersey to Rhode Island and incorrectly blame sewage sludge dumping. Scientists, baffled by large-scale occurrences of dolphin deaths along the Atlantic coast, have looked to the disposal of wastes at sea as a possible culprit.[48] Finally, as a result of these events, public outrage has fueled congress into amending,

once again, the Ocean Dumping Act in an attempt to close the loopholes that allowed for the continuation of dumping for the last eight years.

The Present Ocean Dumping Situation

The pendulum has, once again, swung back to a policy of non-use of the oceans for waste disposal. In response to the renewed controversy over movement of sludge dumping to the 106-Mile Site the Ocean Dumping Ban Act of 1988, actually an amendment to the 1972 Ocean Dumping Act, was produced, setting a date of December 31, 1991 for the cessation of ocean disposal of sewage sludge and industrial wastes. In particular, this amendment specifically avoided the controversy surrounding the determination of "unreasonable degradation" and benefit and risk comparisons of waste disposal media by banning ocean dumping outright and making it economically infeasible to continue dumping much beyond the cutoff date. The key provisions include:

- No new dumpers of sewage sludge or industrial waste.
- No dumping of sewage sludge or industrial waste without a permit and compliance or enforcement agreement.
- Dumping fees imposed starting 270 days from the enactment of the Act and continuing until December 31, 1991.
- Financial penalties imposed for dumping after 1991.

The fees, which are expected to be considerable, are divided amongst EPA, NOAA, and the Coast Guard for

monitoring, research and surveillance activities. Part of the fees will go to coastal states clean ocean funds and part will be held in trust to be returned to the dumpers to support their development of alternatives. Probably the most important aspect of the legislation lies in the consent decrees that have been entered into by the dumpers stating their plans and schedules for implementing alternatives to ocean sludge disposal, which legally bind them to their own plans.[49]

This brings us to the present. It is clear that historical events have been cause for action and reaction by both policy-makers and implementors. The following chapter examines in depth those responses that have affected NOAA's role, politically and scientifically, as it relates to the ocean dumping issue.

NOTES

1. Ronald Manzer, "Public Policy-Making as Practical Reasoning", Canadian Journal of Political Science, XVII:3. September 1984, p. 593 also Michael Kraft and Norman Vig, "Environmental Policy in the Reagan Presidency", Political Science Quarterly, Vol. 99, Number 3, Fall 1984. pp. 438-439

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3. Robert G. Fleagle, "NOAA's Role and the National Interest", in Science, Technology, and Human Values, John Wiley and Sons, 1986. p. 52

2. United States, National Marine Fisheries Service, "The effects of waste disposal in the New York Bight - Final report". Highlands, New Jersey. 1972

5. The term "dead sea" was coined by New York Congressman Richard Ottinger after reading the "Sandy Hook Report".

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8. figure from NOAA, NMFS "Response of the Habitat and Biota of the New York Bight to Abatement of Sewage Sludge Dumping", Progress Report. July 1986 - June 1987

9. U.S. Council on Environmental Quality, "Ocean Dumping: A National Policy", 12-18, 1970

10. ibid., at v.

11. "NOAA Policies Report", see Ch. 2, note 1

12. "Ocean Dumping Act", Titles I and II

13. ibid., Title II

14. U.S. Department of Commerce, "Final Report, Program Development for the MESA-New York Bight Regional Project" September 1972. p. 1-3 (hereafter "MESA Report")

15. personal communication with ex-director of the MESA/NY Bight Project Dr. Larry Swanson, presently director, Waste Management Institute, SUNY Stonybrook, Stonybrook, NY. Feb. 26, 1988

16. "MESA Report", p. 1-2

17. "MESA Report", x-xi

18. Gary Soucie, "Here come de sludge", AUDUBON, Vol 74, No. 4, July 1974, pp. 108-113. Dr. Harris' findings from research cruises showed over a 2 year period (1970-72) that the northern periphery of the 12-Mile site had moved from eight to five miles of shore and that portions of the sludge had broken away from the main mass and were contaminating sea bottom to within one-half mile from shore.

19. ibid., p. 111

20. ibid., p. 111

21. personal communication with Dr. Larry Swanson, Feb. 26, 1988

22. ibid., pp. 112-113 also "NOAA Policies", p. 3

23. reference for the entire paragraph was taken from three sources: "NOAA Policies", pp. 1-4; "Audubon article", pp. 108-113 and from personal communications with Dr. Tom O'Conner, NOAA/Oceans Assessment Division, Rockville, MD and Dr. Larry Swanson (see note 14)

24. Donald F. Squires, The Ocean Dumping Quandary, State University of New York Press, Albany, 1973. pp. 119-120

25. ibid., pp. 120-123

26. "NOAA Policies", see Note 14

27. Personal communications with Drs. Tom O'Connor and Joel O'Conner on March 23, 1988.

28. "NOAA Policies", see Ch. 2, p. 5

29. "NOAA Policies", p. 5

30. Internal NOAA Memorandum dated May 3, 1977. "NOAA Policy on Ocean Disposal at Deepwater Dumpsite 106", written by David H.Wallace, Associate Administrator for Marine Resources

31. NOAA, National Marine Pollution Program. Summary of Federal Programs and Projects - FY 1986 Update. Nov. 1987

32. ibid., p. III-205

33. Personal communication with Dr. Larry Swanson, Feb. 26, 1988 and "Squires", pp. 117-120

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35. from NOAA/NOS, Report to Congress on Ocean Pollution, Monitoring, and Research. October 1985 through September 1986, p. 3

36. "The Role of the Oceans in a Waste Management Strategy", National Advisory Council on Oceans and Atmosphere, January 1981. see also "NOAA Policies", pp. 8-9

37. ibid., p. 220, referenced in text as: 543 F. Supp. 1084 (S.D.N.Y. 1981)

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42. Lawrence Swanson and M. Devine, "Ocean Dumping Policy", Environment, Vol.24, No.5, June 1982. pp.14-20

43. "NOAA Policies", p.8

44. "NOAA Policies", p. 8

45. supra note 40, p. 18

46. "NOAA Policies", p. 9. See also Testimony before the Subcommittee on Oceanography of the House Committee on Merchant Marine and Fisheries, May 25, 1983.

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48. Discussion is based on "Proceedings of the Ocean Dumping Workshop 106-Mile Site", U.S. Environmental Protection Agency, Ocean CIty, New Jersey. March 28-30, 1989.

49. discussion is based on "Proceedings of the Ocean Dumping Workshop 106-Mile Site", U.S. Environmental Protection Agency, Ocean City, New Jersey. March 28-30, 1989

CHAPTER V

NOAA POLICY AND IMPLEMENTATION ANALYSIS

Establishment of public policy can be in many forms, such as the passage of a legislative act, the issuance of an executive order, the handing down of a judicial decision or the promulgation of a regulatory rule. However, that is only the first step. Since policies are rarely self-executing, their implementation is left to government agencies to establish programs or regulations to carry out the policy. Unfortunately, this process is difficult and the end result may differ greatly from the original intent of the law or policy.[1]

The inhibition of effective policy implementation can be explained by George Edwards theory, as discussed in Chapter 2. The four factors that can impede the policy process are:

1. Communication - Lack of or unclear communication disrupts policy implementation. For example, communication difficulties can result from laws and judicial decisions that lack clarity. They can exist between heads of departments and their employees or between collaborating agencies.

2. Resources - If those responsible for carrying out policy lack the resources to do so, policy implementation will suffer. For this paper, resources are defined as funding, information, and authority.

3. Dispositions - In effective policy implementation, the implementors must have the desire to carry out a policy. Disagreements within or between agencies can disrupt the implementation process.

4. Bureaucratic Structure - The structure of bureaucracies, namely standard operating procedures and fragmentation can constrain implementation by inhibiting change and diffusing responsibility.

NOAA is the federal government's primary source of data and information concerning problems of the ocean and atmosphere. This section examines the specific issue of NOAA's involvement in the implementation of ocean dumping policy and discusses the agency's own implementation process as it has been shaped by both the intensely controversial events of the past twenty years and their relation to Edwards theory.

Policy Implementation Difficulties in the Early 1970's

The fledgling NOAA, in the midst of administrative uncertainty, had little or no bureaucratic structure in place to link the already existing environmental programs now under it's purview not to mention develop any new programs. The ocean dumping issue, both politically and scientifically challenging, was only one of many faced by the new agency.

An early example of both dispositional and communication difficulties surrounding the ocean dumping issue arose between the Corps of Engineers and the Sandy Hook Marine Lab over the "Sandy Hook Report". In 1968, the Corps commissioned the then U.S. Fish and Wildlife Service

Laboratory at Sandy Hook to study the dumpsites in the New York Bight (the Corps was, at the time, the closest thing to a coastal ocean agency; its responsibilities included maintaining the navigability of U.S. waters). The purpose of the report, supposedly, was to help the Corps determine the advisability of continuing dumping operations at the present disposal site. The study was to take two years and was to assess the ecology of the site by performing chemical analyses of the water and sediments and pelagic and benthic studies.

The 1970 report indicated that the dumpsite areas were severely degraded, a fact that, seemingly, the Corps was unprepared to accept. Nor was it prepared to deal with the controversy the report created[2]. In an attempt to minimize the negative impact the COE characterized the report as "tentative, incomplete and subject to change"[3]. Further, in an interview for BIOSCIENCE, Kenneth Osborne, a COE staff marine biologist, stated that "the competence of Sandy Hook is only in fishery biological research. The Corps only wrote one contract with Sandy Hook ... they tried their best hydrographically but what is needed now is the highest type of physical oceanography." When asked why the Sandy Hook Lab was chosen in the first place, he stated "Sandy Hook was chosen because they had their own vessels and the Corps would not have to pay for the purchase of such vessels by another organization. [The Corps] would only have to pay

for the cost of using vessels and not the cost of purchasing."[4] Since no policy existed, either within the lab or at the federal level, the Sandy Hook Lab could only react by defending its studies both to the Corps and to an outraged public (a pattern that has seemed to exist ever since).

The above example illustrates how differences in the organizational viewpoints (dispositions) and unclear communications can impede effective policy development and implementation. Specifically to ocean dumping, however, the early controversy with the COE (as a result of the report) contributed to a somewhat defensive posture that was necessary for NOAA to maintain in regard to it's ocean dumping research. The Sandy Hook Lab was a fisheries biology research facility, wholly interested in the study of habitat, predation, life cycles and the many other aspects of marine life. The Corps' focus was on construction and maintenance of marine engineering projects and it had little experience dealing with environmental impacts of these projects especially ocean dumpsites.

Similarly, it was not surprising that communication difficulties also would arise between two agencies with vastly different missions. Edwards states that one of the pitfalls of communication is lack of clarity: transmitted instructions are vague and often do not specify when or how a program is to be carried out[5]. This also seemed to be

part of the problem between Sandy Hook and the COE.

It is important to note that perhaps these early events, that is, those prior to the enactment of MPRSA and the formation of MESA, are less significant to NOAA's present position in ocean dumping research. However, these patterns seem to exist throughout the next twenty years and, as this paper examines, has contributed to many of NOAA's problems in effectively contributing to and implementing a national ocean dumping policy.

Implementation of The Ocean Dumping Act (MPRSA) 1972-1975

The 1970 CEQ report and the escalating controversy over ocean dumping were, in part, responsible for the passage of the MPRSA in 1972. Through this legislation the country had established a form of national ocean dumping policy. However, NOAA, whose responsibilities under MPRSA were significant, had distinct difficulties in those early few years developing any kind of implementation plan.

To begin with four Federal agencies shared major responsibilities for the overall implementation of the Ocean Dumping Act. Because interagency coordination was seen as essential to this mission, the Ocean Disposal Program Coordinating Committee was formed in April 1973 and was comprised of EPA, NOAA, COE and the Coast Guard[6]. This was the first attempt to bring together four diverse bureaucratic units in both an attempt to avoid duplication

of research effort and, more importantly to encourage a high order of interaction. NOAA was charged with heading this committee since it was also lead agency in the research and monitoring of ocean dumping.

Unfortunately this well-intentioned effort to combine forces was a distinct disappointment[7]. A NOAA evaluation described the committee as such:

> "While the committee has been useful as a forum for the exchange of ideas and discussion of common problems, it has met infrequently and the productivity and pace of the committee have been disappointingly low. Reliance on the four-agency committee for speedy resolution of substantive problems of ocean disposal is simply not possible."[8]

Edwards describes two possible reasons why this important attempt at cooperative policy implementation did not work. First, within most organizational units there is often a dominant opinion about the organizations primary mission. Focus is placed on those functions of primary interest leaving those considered as secondary functions with lesser allocations of time and resources. Secondly, bureaucratic units often try to achieve autonomy in carrying out their responsibilities. For this reason they do not want to be controlled by officials outside their organization or to have to coordinate closely with other organizations.[9]

NOAA's attempt to develop it's own program designed to address the legislative mandates of the Ocean Dumping Act seemed equally as difficult. Edwards describes the

development of new programs:

> "Often the passage of a new policy is followed by a period of administrative uncertainty in which there is considerable time lag before any information on program[s] are disseminated. This period is followed by one in which rules are made but are then changed quickly as high-level officials attempt to deal with the unforseen problems of implementing the policy and of their own earlier directives."[10]

For NOAA this process took nearly three years. In 1975 the agency finally published its program issue paper, the purpose of which was to:

> "1) outline the program being developed under the requirements of P.L. 92-523 [the Ocean Dumping Act], Title II;
> 2) provide support and justification for the FY 77 budget request for the ocean dumping program; and
> 3) identify a number of issues which still require resolution in further development of the program."[11]

NOAA admitted in this document that its process was slow in developing. The failure of the Ocean Disposal Program Coordinating Committee to provide coordination between agencies left NOAA with sole responsibility for determining areas of duplicative research as well as areas of inquiry which were not being adequately covered, all necessarily addressed in the new ocean dumping program.

NOAA interpreted its role of monitoring and research as one designed to support and complement the regulatory programs mandated by the first section of the Ocean Dumping Act. A close association between NOAA and EPA therefore was necessary for effective implementation of this new policy. Unfortunately, delays in the establishment of an official relationship between NOAA and EPA headquarters stalled the

necessary interaction. Like NOAA's own program development plan, it took nearly three years before the two agencies were able to develop an interagency agreement outlining in detail the steps each agency would take to satisfy their responsibilities under the MPRSA.

Interagency agreements between bureaucratic units are often important tools to help define their respective roles in a policy area. Bureaucracies, Edwards describes, are often dependent on standard operating procedures (SOP's), that is, internal responses developed because of a desire for uniformity in the operation of complex and widely dispersed organizations.[12] NOAA's interagency agreements could be described as a form of SOP's since they establish specific responsibilities, avenues of communication and funding sources when working with other agencies. While SOP's can inhibit changes in policy or generate undesired actions they are a necessary form of bureaucratic structure. In NOAA's case the lack of an interagency agreement and the bureaucratic steps necessary to establish one have both been cause for inaction [13].

While the establishment of the interagency agreement developed some guidelines for continued interaction, basic dispositional difficulties still existed between NOAA and EPA. Some authors describe this as a tendency of scientists to focus on uncertainties which provide opportunities for discovery, whereas the public and managers tend to desire

more certainty about their environment and in their decisionmaking.[14] In this particular case it could be seen as a sort of scientific disposition versus a regulatory disposition. NOAA's lack of support for EPA's decision to move the 12-mile site out to 60 miles is an example of these attitudes. NOAA's policy, concurrent with the protectionist attitude at the time, did not support possible contamination of a relatively pristine area of the continental shelf. Its findings suggested no significant improvement in water quality would result at the 12-mile site with the cessation of sludge dumping only since the input of other contaminants from the Hudson-Raritan estuary would continue. Overall, NOAA insisted that anticipated regulatory decisions should be based on the best available scientific information.[15] EPA, while supporting this concept, was influenced by more than purely scientific data. The highly visual image of a "sludge monster" devouring congested Long Island beaches was but one of these influences, generating social and political pressure and forcing EPA into decisions that may not have completely considered the scientific realities.[16] While NOAA's data was finally instrumental in EPA's decision not to use the 60-mile site the whole process once again placed NOAA in an defensive role and illustrated the difficulties of integrating science into regulatory decisionmaking.

Another responsibility of the Ocean Dumping Act (Section 203) which originally fell upon NOAA's shoulders

was the exploration of alternatives to ocean dumping such as recycling, new industrial processes, incineration, and other forms of land disposal. NOAA stated, however, that the development of these technologies fell outside the background, mission and competency of the agency. Since both the Corps of Engineers and EPA were already involved in the research of alternatives any involvement by NOAA was seen by the agency as duplicative. Besides, NOAA had no resources for such an endeavor[17]. This "disposition", that is, the perception that the search for alternatives was outside it's primary mission, seemed to justify NOAA's decision to remove itself from the obligation of the law. In turn, it left in limbo one important aspect of the Ocean Dumping Act, the exploration of means of minimizing or ending all dumping of materials into the ocean.

MESA/NY Bight Project

NOAA's Marine Ecosystem Analysis Program (MESA) was probably one of the most effective implementation tools available to NOAA during the early years of the ocean dumping issue. Its well thought-out mission, its ability to adapt to new directions and its tightly organized structure were responsible for its success in providing a better knowledge of the New York Bight and the impact of waste disposal in it.

Unlike other programs in NOAA, MESA was blessed with an

extensive development plan produced by Westinghouse Electric Corporation.[18] This report detailed the scope of MESA and provided a valuable foundation from which to build this program. In many ways this plan could be likened to a standard operating procedure, providing specifics on the program's management and scientific approaches and the technical resources available. The report went so far as to outline each identified task with it's specific objective, approach, list of recipients, relationship to other tasks and it's start and end dates.[19]

The MESA/NY Bight Project could be described as a successful implementation tool because it avoided many of the pitfalls outlined by Edwards. To start, communications were consistent and clear because it was a small, cohesive group located at the site of the problem. It's products were applicable and readily available to the users, the largest being the EPA. The resources were already available for the MESA program when it's focus was narrowed to ocean dumping in the NY Bight. It had talented people with the proper skills for the tasks. Because of it's close proximity to the problem it received the information necessary to function properly, either from EPA or from it's supervised field work. Because of NOAA's mandate under MPRSA the program met an immediate need. Probably most important, however, was that the program generated quality information that <u>was</u> used.

Other factors contributed to MESA's success. The differing viewpoints between NOAA and EPA common at the headquarters level were mainly confined to Washington. MESA was able to maintain a fairly close working relationship with EPA Region II throughout most of tenure. MESA's program development plan was not so restrictive or firmly entrenched in the agency's infrastructure that the program could not effectively pursue the new direction it was thrust into at the beginning of the ocean dumping crisis. Although Edwards describes it as a pitfall, fragmentation may have been a benefit for MESA. The physical and bureaucratic separation from NOAA headquarters may have isolated MESA from some of the disruptive business of government.

Even in light of its accomplishments, however, circumstances surrounding the success of the program may have been partly responsible for the difficulties in policy development and implementation that later contributed to NOAA's lack of presence in today's study of ocean waste disposal. Within two years of it's inception, MESA was already considered the "expert" in the study of ocean dumping in the New York Bight and it's data was used extensively by EPA in it's regulatory decisions. Since these regulations were under almost constant challenge whenever they were at all controversial or went against political desire or popular beliefs NOAA was often put in the position of defending it's science to both a summoning

Congress and an investigatory press. Similarly, it's easy accessibility to EPA, the public and the media was responsible for continually drawing NOAA into the ocean dumping spotlight, a fact that made people in NOAA headquarters in Washington very uncomfortable. According to Dr. Larry Swanson, then director of the MESA/NY Bight Project, most of NOAA's other programs and policies were lacking in controversy leaving the agency both unprepared for and extremely intimidated by the attention placed on ocean dumping. He fully believes that when the time came for the NY Bight Project to end, NOAA officials "breathed a sigh of relief". He also saw the reorganization of MESA and the physical move of the program as a "retreat" to Washington, out of the limelight, so to speak, where it could be better controlled by NOAA officials. MESA's incorporation into already existing programs seemed to mark the beginning of the end of NOAA as a significant contributor to both ocean dumping science and, ultimately, policy decisions.[20]

Resources: Funding, Information, and Authority

Resources, or lack of them, have also played a significant role in both the early development and continued presence of NOAA in the ocean dumping policy process. In 1972 the Ocean Dumping Act allowed a scant one million dollars for the research necessary to support regulation of

ocean dumping. At this time NOAA asked the Department of Commerce (DOC) for $4.1 million either as a supplemental "add-on" or amendment to the fiscal year 1974 congressional submission, but was disapproved. NOAA asked for no funding under the Ocean Dumping Act in 1975. In 1976, DOC approved $2.0 million of a $5.7 million request by NOAA but the Office of Management and Budget (OMB) disallowed the funds. Five years after the passage of the Ocean Dumping Act NOAA requested and Congress finally approved $1.37 million as an initial appropriation under the Act.[21] It was only then that NOAA began the Ocean Dumping Program.

It is unclear whether lack of funds was the reason for the failure to develop a specific NOAA program tasked to meet the requirements of the Ocean Dumping Act or the lack of programmatic development stymied the acquisition of funds necessary to effectively carry out the legislative mandates. What is clear is its detrimental effect on the acquisition of the information necessary to support effective policy implementation.

All work on ocean dumping research up to this point was conducted using resources from other programs including MESA, National Ocean Survey (NOS) and NMFS. MESA resources were directed to the immediate problems in the New York Bight in the first five years (see discussion below) as a result allowing NOAA to meet its requirements under the Ocean Dumping Act. However, dispositional issues and

fragmentation of funding and information sources inhibited further policy implementation, a consequence still felt today. For example, NOS conducted the early baseline surveys at the 106-mile dumpsite which contained extensive analyses of the chemical and physical properties of the site, the office's area of expertise. Only limited information was included on the biological activity in the region since this was not an NOS area of expertise. Personnel within NMFS, at the time, were vehemently opposed to ocean dumping and therefore did not support research which was being conducted on the effects of ocean dumping both at the 12 and 106-mile sites because it might be construed as supporting continued dumping. Dr. Robert Edwards, director of the NMFS Northeast Fisheries Center, was one of the most outspoken critics thinking NOAA should not involve itself in dumping matters unless the agency's position was strictly that of "no dumping".[22] Edward's theory seems to explain the dynamics of this type of situation:

> "Different bureaucratic units are likely to have different views on policies. Intra- and interagency disagreements inhibit cooperation and hinder implementation. Within a single policy area, each relevant agency probably has different priorities, different commitments, and different methods of handling problems. Similar differences may arise between those within different program responsibilities within an agency. These differences are not conducive to creating the mutual trust and close working relationships that are frequently necessary for effective implementation."[23]

In reality, the consequences of such dispositions have

had long-term ramifications. While the baseline studies by NOS at the 106-mile dumpsite continue to provide pertinent information on the physical ocean such is not the case for the biological ocean at the site. In a recent statement to a congressional hearing on amendments to the Ocean Dumping Act NMFS admitted little information on benthic fauna in the dumpsite region is available after 1976 and in-fact these early measurements can only provide limited benchmark information. It went on to admit that these measurements should have been accomplished prior to extensive dumping and at continued intervals after the onset of dumping[24].

The above examples show that important information may not have been available for incorporation into the decisionmaking process. As policies within NOAA shifted over time from protectionism to reappraisal and ultimately to a benefit and risk assessment attitude, in line with national policies, a greater burden has been placed on the importance of information required to implement new programs. The greater use of the oceans for waste disposal demands a better knowledge of the processes at work.

Edwards theory views authority as another important resource in the implementation of policy. Authority can vary from program to program and comes in many different forms: the right to issue subpoenas, issue orders to other officials, provide or withdraw funds from a program, or take cases to court. Implementation problems can exist when two

agencies falling within the same jurisdiction have to share authority.[25] As provided by the Ocean Dumping Act, EPA clearly maintains authority to issue permits and institute regulations regarding ocean dumping. It is less clear, however, what role was played by the scientific information and continued monitoring necessary to support those actions. Certainly during the MESA days NOAA's opinions were heavily relied upon. EPA's decision not to allow dumping at the 60-Mile dumpsite based on NOAA's findings, illustrates how NOAA's scientific involvement affected policy and regulations. Clearly, the greater the role that scientific information plays in the regulatory process the greater is it's "authority". While nowhere in the Ocean Dumping Act was NOAA given any kind of mandated authority, a sense of control may have developed as EPA decisions relied upon NOAA's scientific findings.[26] After the ocean dumping program responsibilities moved to Washington, D.C. this issue seemed to disappear probably due to the lack of cooperation between the two agencies at the headquarter level.

NOAA Structure and Policies: 1977-1981

According to Edwards theory, the reorganization of NOAA's ocean dumping programs from 1979 to 1981 could have contributed significantly to policy implementation problems within NOAA. The incorporation of MESA into the Office of

Marine Pollution Assessment (OMPA), the attempted move of the ocean dumping program to the northwest, and the subsequent reorganization of OMPA into the Oceans Assessment Division quickly diluted a viable working program of ocean dumping research. While both of these pollution assessment programs were NOAA's attempt to address broader ocean pollution issues, the immersion of the ocean dumping programs into the broader-based pollution programs was seen by those within the organization as an attempt to distance the agency from the immediate controversy of ocean dumping. Edwards reasons that if the disposition of officials within a bureaucracy is against a policy or the policy's ramifications to that agency, effective implementation will suffer. If, in fact, as Dr. Swanson stated, the attention NOAA was receiving regarding ocean dumping was intimidating to the agency, a possible solution would be to lessen the program's visibility. The facts are that by 1982 no program existed within NOAA that dealt exclusively with ocean dumping.

In actuality, it is not clear what the motivation was for the reorganization discussed above or the rapid disappearance of an ocean dumping program within NOAA. However, on a broader scale the whole time period from 1977 through 1982, when numerous changes in the Federal ocean dumping policy were taking place, may have made it difficult for NOAA to keep abreast of and respond to the events and

decisions of the moment. Edwards theorizes that inconsistency in policy and implementation orders can effectively inhibit the process and send mixed signals to the agencies attempting to perform their roles. The established ocean dumping law (and one must assume, policy) was made stronger by EPA and Congress in 1977 so that all dumping that "unreasonably degraded" the oceans would end by December 1981. It was also hoped that this would provide an added incentive to develop alternative disposal techniques. It had an added effect, however.[27] At the same time as seemingly restrictive measures were being taken at the inshore dumpsite increased focus on the 106-Mile Site as one alternative to the inshore site was also taking place. Camden, New Jersey was allowed to dispose of their municipal waste at the 106-Mile site on an emergency basis and industrial waste continued to be dumped at the site. NOAA involvement in the studies of each of these events produced conclusions suggesting that the highly dispersive nature of the site could accommodate the kinds and amounts of sludge dumped at the 12-Mile Site.[28] All this seemed to result in NOAA finding itself supporting limited ocean dumping through its research into ocean dumping effects all the while favoring EPA's December 1981 deadline for the cessation of sludge dumping. A particular example, while perhaps anecdotal, nevertheless illustrates the results of inconsistent and unclear policymaking. In the first half of

1977 an internal memorandum from the Acting Administrator for Marine Resources (dated May 20, 1977) titled "Is Ocean Dumping Really That Bad" stated:

> "Our position on this subject has always been that we are supposed to be the protector of the oceans, but this may not be reasonable if one takes a broader context. How will New York City dispose of their sewage sludge? Can they come up with a new plan in four years?...Suppose we take a position that everyone should dump sludge at the 106-Mile Site? Why not?[29]

Inexplicably, at the same time a NOAA issue paper dated May 3, 1977 intending to identify NOAA's policy on ocean dumping, in part stated:

> "It is NOAA's policy to oppose ocean disposal of sewage sludge; the agency endorses EPA's policy to terminate this dumping by 1981."[30]

Edwards policy implementation theory, applied to the two major events in 1981 (namely the NACOA Report and the "Sofaer Decision"), illustrates how these events affected both the formulation of NOAA policy and, in turn, the implementation of that policy.

Edwards discussion about unclear and inconsistent policies is borne out in NACOA's report on ocean dumping:

> " Because it is impossible to implement all five statutes [namely Federal Water Pollution Control Act, MPRSA, Safe Drinking Water Act, Resource Conservation and Recovery Act and the Clean Air Act] simultaneously, the implementation of each statute has shifted the burden of receiving society's waste products to the medium least regulated at the moment.... NACOA is concerned that this medium-by-medium approach may have produced groups of regulations whose primary objective is to protect a particular medium from use as a waste disposal medium, without any regard for the impact of these regulations on other media."[31]

If, in fact, this observation by NACOA was true it could

have contributed to difficulties for NOAA (or any other agency for that matter) involved in the implementation of these laws.

The "Sofaer Decision"[32], for the purposes of this discussion, serves to illustrate 1) the difficulties that can be encountered by an agency attempting to translate the language of laws into actions and 2) the role of the courts in the policymaking process. Edwards theory addresses both issues. In the first, he acknowledges that laws are often unclear, sometimes leaving it up to the implementors to determine the true intent of the law. Sometimes, however, the complexity of the issue warrants a certain vagueness. He reasons:

> "Neither executives nor legislators have the time or expertise to develop and apply all the requisite details for implementing policy. They have to leave most (and sometimes all) of the details to subordinates."[33]

One of the major criticisms made by the "Sofaer Decision" was EPA's interpretation of the language of the Ocean Dumping Act, specifically, regarding sewage sludge which "unreasonably degraded" the environment. Discussions about Judge Sofaer's decision argue that the law acknowledged scientific and environmentally sensitive regulations were necessary for proper implementation of the law and correctly deferred that responsibility to EPA.[34] In the second issue, Edwards states that the narrow definitions made by the courts can significantly impact policy and, in turn, the

respective implementation.[35] In this particular case, while the court did not attempt to change the 1981 deadline for the cessation of dumping, it did focus on EPA's consideration of the factors involved in the issuance of ocean dumping permits.[36] Of course, the results of the court's ruling are well known.

NOAA Policy Issues from 1982 to the present

NOAA's policies in the 1980's certainly reflected the realities of the law and emerging scientific conclusions regarding expanded use of the oceans as a waste disposal option. The major policy reversal that oceans should not be accorded a preferential treatment in waste management decisions was ironically, for a time (in 1983), contrary to EPA, who proposed special treatment for the ocean with respect to other disposal media. In general, though, there was less problem with coordination between the respective agencies in the 1980's although this may be reflective of the fact that there was less coordination.[37]

One problem area for NOAA throughout this period and, most likely, throughout the whole twenty years of ocean dumping history, was the definition of monitoring. Similar to the problems EPA encountered regarding the Ocean Dumping Act's use of the term "unreasonable degradation", the law did not clearly define what monitoring meant. While NOAA was charged with the responsibility of conducting

NOTES

1. "Edwards", p. vii. See note 3, Introduction

2. Personal communication with Dr. John Pearce, Deputy Director, Northeast Fisheries Center, National Marine Fisheries Service on 9 February 1988. He was director of the Sandy Hook Lab during this period of discussion.

3. Peter III, Walter G., see Ch. 3, note 5, p. 617

4. ibid., p. 619

5. "Edwards", p. 26

6. NOAA, "Program Issue Paper on the Monitoring and Research Provisions of the Marine Protection, Research and Sanctuaries Act", Office of Marine Resources, Marine Environmental Protection Office. June 1975 (hereinafter referred to as "NOAA Issue Paper")

7. ibid., p. 9

8. ibid., p. 9

9. "Edwards", pp. 95-97

10. "Edwards", p. 39

11. "NOAA Issue Paper", p. 1

12. "Edwards", p. 125

13. Personal communication with Merton C. Ingham, chief, Physical Oceanography Branch, National Marine Fisheries Service, Narragansett, RI. 11 November 1988

14. J.S. O'Connor and D.A. Flemer, "Monitoring , Research, and Management: Integration for Decisionmaking in Coastal Marine Environments," New Approaches to Monitoring Aquatic Ecosystems, ASTM STP 940, T.P. Boyle, Ed., American Society for Testing and Materials, Philadelphia, 1987, p. 72

15. "Evaluation of Proposed Sewage Sludge Dumpsite Areas in the New York Bight." NOAA Technical Memorandum ERL MESA-11, February 1976 and "Contaminant Inputs to the New York Bight." NOAA technical Memorandum ERL MESA-6, April 1976

16. "NOAA Policies", p. 3

17. "NOAA Issue Paper", p. 13

18. Westinghouse Electric Corporation, Final Report Program Development Plan for the MESA-New York Bight Regional Project, submitted to U.S. Department of Commerce, Washington, D.C., 1 September 1972

19. "MESA Report" pp. 1-5

20. the entire paragraph was based on personal communication with ex-director of the MESA/NY Bight Project, Dr. Larry Swanson, presently director of the Waste Management Institute, SUNY Stonybrook, Stonybrook, NY., 26 Feb. 1988

21. "NOAA Policies", footnotes p. 14

22. ibid., pp. 3-4

23. "Edwards", p. 116

24. Memorandum for John Bovard, NMFS Congressional Liaison Office from Jack Pearce, Deputy Director, Northeast Fisheries Center entitled "An Assessment of the Status of Ocean Dumping of Sewage Sludge and Continuing Research and Monitoring", 11 Feb. 1988

25. "Edwards", pp. 66-67

26. Ocean Dumping Act, Sections 201 and 202

27. Public Law 95-153, November 4, 1977. See also "NOAA Policies", pp. 5-6

28. see "Projected Consequences of Dumping Sewage Sludge at a Deep Ocean Site Near the New York Bight." O'Connor et al., 1983. Canadian Journal of Fisheries and Aquatic Sciences, 40(Suppl.2): pp. 228-241

29. "NOAA Policies", p. 5

30. see note 28 in "Historical Perspective" chapter for complete text of policy statement

31. "The Role of the Ocean in a Waste Management Strategy", National Advisory Committee on Oceans and Atmosphere, Washington, D.C., January 1981

32. the commonly referred name of EPA v. New York City 543 F Supp. 1084

33. Edwards, p. 36

34. Allan Bakalian, "Regulation and Control of United States Ocean Dumping: A Decade of Progress, An Appraisal for the Future", Harvard Environmental Law Review 8(1), 1984. pp. 193-256

35. Edwards, pp. 39-40

36. Bakalian, op. cit.

37. see note 13, Historical Perspectives chapter

38. Personal communications with Frank Csulak, EPA Region II, 10 March 1988 and Henry Walker, EPA Environmental Research Lab, Narragansett, RI, 6 March 1990

comprehensive research and monitoring regarding the effects of ocean dumping, in 1984, EPA contracted with Battelle Ocean Services, a private ocean research firm, to conduct research, in part to support it's ocean dumping permitting process. Discussions with people in EPA have indicated that EPA employed Battelle because it was not receiving the necessary information from NOAA. The present contract between EPA's Office of Estuarine Protection and Battelle is for $48 million over three years, a substantial portion of which goes directly toward monitoring and research at the 106-Mile Site.[38]

After the reorganization of NOAA's ocean dumping and marine pollution programs in 1981, the disposition within the newly formed Ocean Assessment Division was that ocean dumping was more of a political and social issue and less of a scientific one. The Status and Trends, Mussel Watch, and other marine environmental monitoring programs, while including the dumpsite areas, were concerned with nation-wide data acquisition and analysis. Consequently, little more was done specific to ocean dumping in the New York Bight.

The discussion/conclusions that follow will attempt to summarize and coalesce the application of Edwards theory to the events of the past twenty years.

CHAPTER VI

CONCLUSIONS

"The history of evolving policy on ocean dumping by NOAA reveals the workings of a federal agency attempting to reconcile its views on protection of the ocean environment with legislative mandates, new scientific findings, and the realities of the given waste disposal situations.[1]

Philip Cohen
1986

The original premise of this paper that NOAA has not met its responsibilities under the Ocean Dumping Act with regard to ocean dumping research and monitoring is based on three questions. 1) How have NOAA's ocean dumping policies been shaped? 2) What difficulties have arisen in the implementation of these policies? 3) How have these issues shaped NOAA's present role in the ocean dumping situation?

NOAA's policies did not evolve in a void. They were concurrent with the three distinct phases of national policies. The first approached ocean disposal as a temporary measure to be eliminated as soon as possible. Political and social pressure notwithstanding, NOAA saw itself as a protector of the ocean and its actions reflected that attitude. The second phase came about as the realities of scientific evidence and the lack of practical alternatives made ocean dumping more feasible for some substances. NOAA's decision to not exclude the ocean as a

disposal medium under certain conditions was the third phase and followed a national policy that waste management decisions should be based on a reasonable and comprehensive assessment of comparable benefits and risks. With the passage of the Ocean Dumping Ban Act, we have, perhaps, returned to the original phase; non-use of the ocean for waste disposal. It is interesting to note that political determinations were the framework for the decisions to "get out of the ocean" while those of science found a place for sewage sludge in the marine environment.

Neatly laying out the direction of policy over the twenty years, while generically valid, does not include a portrayal of the often difficult implementation process associated with policies. George Edwards emphasized an explanation of the factors that adversely affect policy implementation. This paper, in turn, identifies the problems associated with the particulars of NOAA's attempts at implementation and, in effect, overlays them onto Edwards theory.

While all four factors in Edwards theory have played a role in this discussion, communication and disposition problems have most significantly affected the direction of implementation. The Ocean Dumping Act assigns NOAA three responsibilities: 1) monitoring the effects of waste dumped into the ocean, 2) conducting research programs on long-range effects of pollution and human-induced changes on the

marine environment, and 3) the search for alternatives. In the early years (1970-1972) NOAA's research plans focused on ecosystem-wide studies into the effects of human activities on coastal waters. However, vague ocean dumping policies made it difficult for the newly-formed NOAA to respond to the growing ocean dumping crisis. After 1972, more specific studies at the 12-mile dumpsite were the major focus of NOAA's research. Much of this work was in response to sludge-induced crises, real or imagined. The understanding of the dynamics of the New York Bight by MESA/NY Bight Project was an added benefit received by the monitoring activities of ocean dumping. Within the realm of policy, the Ocean Dumping Act established a statutory-based national policy with a fair amount of discretion accorded to the implementing agencies. In 1974, NOS conducted the first in series of studies (often referred to as baseline studies) at the 106-mile site. Most research was still specific to montoring of ocean dumping. This continued until the reorganization of NOAA ocean dumping and marine pollution programs in 1981. However, dispositional difficulties between and within agencies, along with unclear policies, provided roadblocks.

It is the period after 1982 that seems to mark the end of NOAA's ocean dumping-specific monitoring/research programs. In NOAA's Ocean Assessment Division FY 1986

Report to Congress on Ocean Pollution, Monitoring, and Research they state:

> "During the past year the OAD program has continued to develop the operational capabilities necessary for analysis of marine and estuarine environmental quality problems in a national context. It has directed NOAA's environmental quality assessment and monitoring efforts toward coastal and estuarine areas where problems are more immediate than in the open ocean." [emphasis from quoted text]

A thorough search of literature revealed no other ocean dumping studies performed by NOAA either site or activity specific until 1987 when the 12-mile dumpsite recovery study by NMFS was undertaken. Of all studies related to or in the vicinity of the 106-mile dumpsite conducted after 1984 none was either sponsored or performed by NOAA. The studies that only incidentally incorporated the dumpsites into the overall sampling strategy, such as MARMAP, NEMP, and Status and Trends were essentially ecosystem-wide monitoring plans. Ocean dumping influences were considered as only one of the many pollutant inputs studied.

There is not a clear picture as to whether NOAA failed in its ocean dumping mandate in some way. Its original intent in 1972 with the creation of MESA was to conduct "ecosystem-wide" research, by including all the factors that influence the health of a system. The agency's present-day programs are similar in that respect. NOAA is, in fact, fullfilling that part of its ocean dumping mandate that instructs it to conduct long-term research into man's impact on the marine environment. However, insofar as NOAA has

removed itself from the monitoring of ocean dumping, it has not seemed to have lived up to its mandate. The acknowledged lack of information regarding benthic fauna, the non-existence of any recent dumpsite studies, and EPA's employment of Battelle to conduct it's research in support of the permitting process all seem to support this premise.

There is renewed interest by NOAA in the deepwater dumpsite since the passage of the Ocean Dumping Ban Act of 1988. A cynical person might suggest that this interest stems from the large influx of money as a result of the dumper's user fees. A hopeful person might believe that this represents a golden opportunity to delve deeper into a relatively unknown area. It might be suggested there are certain realities to both.

NOTES

1. from "NOAA Policies" p. 10. This seems to summarize the difficulties facing NOAA as a scientific agency. It seemed like an appropriate quote for the conclusion.

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